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Los Angeles Unified School District

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO DIVISION

STATE OF CALIFORNIA, et al.,  
  
Plaintiffs,  
  
v.  
  
WILBUR L. ROSS, JR., et al.,  
  
Defendants.

Case No. 3:18-cv-01865-RS

**DECLARATION OF SUE ANN SALMON  
EVANS IN SUPPORT OF LOS ANGELES  
UNIFIED SCHOOL DISTRICT'S  
OPPOSITION TO MOTION FOR  
SUMMARY JUDGMENT**

Judge: Hon. Richard Seeborg  
Courtroom: 3  
Date: December 7, 2018  
Time: 10:00 a.m.

Complaint filed March 26, 2018  
First Amended Complaint filed May 4, 2018

Trial date: January 7, 2019

**DECLARATION OF SUE ANN SALMON EVANS**

I, Sue Ann Salmon Evans, declare as follows:

1. I am an attorney admitted to practice law before the United States District Court for the Northern District . I am a shareholder in the law firm of Dannis Woliver Kelley (“DWK”), and counsel of record for Los Angeles Unified School District (“LAUSD” or “District”) in the matter of *State of California v. Ross*, U.S. District Court for the Northern District of California, case no. 3:18-cv-01865 (the “Litigation”). I have personal knowledge of the facts set forth in this declaration and if called as a witness could competently testify as follows.

2. As counsel of record for LAUSD in this Litigation, I am familiar with the pleadings, discovery, and correspondence in this litigation and am similarly familiar with DWK’s record-keeping policies, practices, and procedures for maintaining same.

3. Attached hereto as **Exhibit A** is a true and correct copy of a document excerpt bates stamped COM\_DIS00009871 and produced by the United States Department of Commerce in this Litigation, pursuant to the coordinated discovery agreement for the related census cases as stipulated to by the parties and approved by Court Order dated August 17, 2018 (ECF#76).

4. Attached hereto as **Exhibit B** is a true and correct copy of U.S. Census Bureau, *2010 Census Coverage Measurement Memorandum Series #2010-G-01*, which I downloaded from, and is available, at [https://www.census.gov/coverage\\_measurement/pdfs/g01.pdf](https://www.census.gov/coverage_measurement/pdfs/g01.pdf) (last visited, Nov. 16, 2018).


5. Attached hereto as **Exhibit C** is a true and correct copy of U.S. Census Bureau, Nat’l Advisory Comm. on Racial, Ethnic, and Other Populations, *Final Report of the Administrative Records, Internet, and Hard to Count Population Working Group* (July 2016), which I downloaded from, and is available, at [https://www2.census.gov/cac/nac/reports/2016-07-admin\\_internet-wg-report.pdf](https://www2.census.gov/cac/nac/reports/2016-07-admin_internet-wg-report.pdf) (last visited, Nov. 16, 2018).

6. Attached hereto as **Exhibit D** are a true and correct copy of excerpts from the U.S. Census Bureau’s FRCP 30(b)(6) deposition transcript dated October 5, 2018.

//

1 I declare under penalty of perjury, under the laws of the State of California and the United  
2 States, that the foregoing is true and correct.

3 Executed November 16, 2018, in Los Angeles, California.

4  
5   
6 Sue Ann Salmon Evans

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# **EXHIBIT “A”**

**Table 9. Comparison of Predicted 2016 ACS to 2010 Census Response Rates for AR Noncitizen and All Other Households with Their Own vs. All-Citizen Models**

Model\Sample	2016 ACS – 2010 Census
	AR noncitizen household sample
AR noncitizen household model	-19.7 (0.47)
AR all-citizen household model	-20.5 (0.34)
Difference-in-differences	0.8 (0.58)
Model\Sample	All other household sample
All other household model	-21.7 (0.33)
AR & ACS all-citizen household model	-15.9 (0.39)
Difference-in-differences	-5.8 (0.51)

Source: 2016 ACS 1-year file and 2016 Numident.

Notes: 2010 Census self-response is non-blank response to the first mailing, and only NRFU-eligible housing units are included. ACS self-response is mail response. The standard errors are in parentheses. The standard errors for the 2010 Census – 2016 ACS response differences are calculated using Fay's balanced repeated replication variance estimation method, with 80 replicate weights, adjusting the original weights by a coefficient of 0.5. The difference-in-differences (*DiD*) standard errors (*SE*) are calculated as  $DiD\ SE = \sqrt{SE(Est_1)^2 + SE(Est_2)^2}$ , where the two estimates (*Est*) are the 2010 Census – 2016 ACS differences for the two groups. The estimates use ACS housing unit weights. 28.6 percent are in the all other households group in 2016. The standard errors are in parentheses. They are the standard errors of the model predictions, based on the bootstrapped regressions in Appendix Table A12 that use 80 ACS replicate weights. The number of observations is 163,000 for the AR noncitizen household sample and 477,000 for the all other household sample.

Though suggestive, these exercises and the ones performed below are not perfect laboratories for studying the self-response effect of inclusion of a citizenship question on the 2020 Census. The ACS contains 75 questions, so any one question is unlikely to stand out, whereas an added question will be more visible in the 2020 Census questionnaire, which contains just 10 other questions.<sup>53</sup> Thus, we would ideally want to compare response rates on a short questionnaire without a citizenship question to one adding just the citizenship question. Second, the level of concern about using citizenship data for enforcement purposes may be very different in 2020 than it was in 2000 or 2010, so a more recent test would be preferable. These factors suggest the estimated effect on self-response from the exercise in Table 9 is conservative.

<sup>53</sup> A preferable test would be a randomized control trial (RCT) comparing self-response rates where some households are randomly chosen to have an 11-question Census questionnaire with a citizenship question (the treated group), and a randomly chosen set of control households receive a 10-question Census questionnaire without citizenship.

# **EXHIBIT “B”**



UNITED STATES DEPARTMENT OF COMMERCE  
Economics and Statistics Administration  
U.S. Census Bureau  
Washington, DC 20233-0001

May 22, 2012

DSSD 2010 CENSUS COVERAGE MEASUREMENT MEMORANDUM SERIES #2010-G-01

MEMORANDUM FOR David C. Whitford  
Chief, Decennial Statistical Studies Division

From: Patrick J. Cantwell *(Signed)*  
Assistant Division Chief, Sampling and Estimation  
Decennial Statistical Studies Division

Prepared by: Thomas Mule  
Decennial Statistical Studies Division

Subject: 2010 Census Coverage Measurement Estimation Report: Summary  
of Estimates of Coverage for Persons in the United States

This report is one of twelve documents providing estimation results from the 2010 Census Coverage Measurement program. This report provides a summary of the United States coverage results for persons in households.

For more information, contact Thomas Mule on (301) 763-8322 or Patrick Cantwell on (301) 763-4982.

cc:  
DSSD CCM Contacts List

# Census Coverage Measurement Estimation Report

## Summary of Estimates of Coverage for Persons in the United States

Prepared by  
Thomas Mule

Decennial Statistical Studies Division



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## **Executive Summary**

This document summarizes the 2010 survey-based coverage estimates for the household population excluding Remote Alaska areas. The Census Coverage Measurement (CCM) program produced net coverage results showing undercounts or overcounts using dual system estimation. Comparisons to 1990 Census results are from the 1990 Post-Enumeration Survey and to Census 2000 results are from the Accuracy and Coverage Evaluation Revision II estimates.

Additionally, the CCM program produced the components of census coverage that include erroneous enumerations and omissions. The CCM estimates of components of census coverage have more detail relative to previous coverage surveys for which similar efforts were primarily research-related.

### **Overall Household Population**

The following are the key findings for the household population.

- The 2010 Census did not have a significant percent net undercount. The CCM estimated a net overcount of 0.01% (0.14% standard error) or 36,000 (429,000) persons. The CCM population estimate was not significantly different from the 2010 Census count. In previous studies, Census 2000 had a national net overcount of 0.49% (0.20%) while the 1990 Census had a net undercount of 1.61% (0.20%).
- The CCM estimated 10.0 million erroneous enumerations in the 2010 Census. Of the 10.0 million, 8.5 million were erroneous enumerations due to duplication while the remaining 1.5 million were erroneous enumerations due to other reasons.
- The 2010 Census had more erroneous enumerations due to duplication than Census 2000. The 8.5 million erroneous enumerations due to duplication in 2010 was larger than the Census 2000 estimate of 6.6 million duplicates.
- All demographic characteristics were imputed for 6.0 million census records. Of these, 4.8 million were in housing units where a population count was obtained.
- The CCM estimated 16.0 million omissions in the 2010 Census. Part of this estimate of omissions may be attributed to the 6.0 million records with all characteristics imputed.

### **Coverage by Race and Hispanic Origin**

The CCM continued to measure differential net coverage by race and Hispanic origin.

- The CCM estimated a net undercount of 2.06% for the Black alone-or-in-combination population for the 2010 Census. This was not statistically different from the Non-Hispanic Black domain estimate of 1.84% for Census 2000. The 2010 Census net undercount was significantly different from the 1990 estimate of 4.57%.

- The CCM estimated a net undercount of 1.54% for the Hispanic population. This was not statistically different from the Hispanic domain estimate of a 0.71% net undercount for Census 2000, but it was lower than the 4.99% estimate in the 1990 Census.
- The CCM estimated a 4.88% net undercount for the American Indian and Alaskan Native alone-or-in-combination population living on American Indian Reservations. This was statistically different than the Census 2000 estimate. The 2010 estimate was not significantly different from the 12.22% net undercount for the 1990 Census.
- The Non-Hispanic White alone population had a net overcount of 0.83% in the 2010 Census. This was not significantly different from the 1.13% net overcount for the Non-Hispanic White domain in Census 2000. The 2010 estimate was significantly different than the 1990 estimate of 0.68% net undercount for this domain.
- For the components of census coverage for the Black alone-or-in-combination and the Hispanic populations, the CCM estimated higher percentages of erroneous enumerations, whole-person imputations, and omissions as compared to the Non-Hispanic White alone population.

### **Coverage by Tenure**

The CCM continued to measure differential coverage by tenure.

- The estimated net undercount for renters in the 2010 Census was 1.09% as compared to a net overcount of 0.57% for owners. Comparing to Census 2000, the 2010 Census saw a reduction in the percent net overcount for the owner population while showing no significant difference for renters.
- The components of census coverage show that renters had higher percentages of erroneous enumerations due to duplication than owners (3.7% versus 2.4%) and higher percentages of records requiring all of their characteristics to be imputed (3.0% versus 1.5%).

### **Key Results for Census Operations**

The CCM estimated the following results for census operations:

- For Type of Enumeration Area, Update/Leave areas had a 1.37% net overcount while Update/Enumerate areas had a 7.87% net undercount.
- The overcount of Update/Leave areas can be partially attributed to the fact that 4.7% of the census enumerations were erroneous due to duplication. This percentage was larger than the 2.7% for Mailback enumeration areas.
- For the Update/Enumerate areas, 5.3% of census records required imputation of all characteristics. This was larger than the 2.0% for Mailout/Mailback areas.

- For the Nonresponse Followup field operation, persons in housing units with a proxy respondent had 5.6% erroneous enumerations due to duplication and had 23.1% requiring all of their characteristics to be imputed. Persons in housing units in which a household member responded had 4.2% and 1.6%, respectively.
- For most of the Coverage Followup Operations, completed interviews generally resulted in lower percentages of erroneous enumerations than non-completed cases.

## 1. Introduction

As part of the 2010 Census, the United States Census Bureau conducted the Census Coverage Measurement (CCM) survey, a survey-based approach to assess the quality of the decennial census<sup>1</sup>. The CCM program evaluated the coverage of the 2010 Census and provided information to improve future censuses.

The major goals of the CCM program (Singh 2003) were to

- continue to provide measures of net coverage;
- produce measures of the components of census coverage, including erroneous enumerations and omissions;
- produce measures of coverage for demographic groups and geographic areas, as well as for key census operations.

This document summarizes the 2010 CCM coverage estimates for the household population excluding Remote Alaska enumeration areas. This document draws on reports prepared by Census Bureau staff that provide results or examine the quality of CCM estimates. See Mule and Konicki (2012) for a summary of the housing unit coverage.

This CCM summary report differs from the series of reports released by the Accuracy and Coverage Evaluation (A.C.E.) program to evaluate the Census 2000 coverage. There are no plans to use CCM results to produce adjusted population estimates for any purpose, and there will be no such recommendation.

Section 2 provides background on the net coverage and the estimation of components of census coverage. Section 3 provides limitations on the results shown. Section 4 discusses the coverage results for the total population. Section 5 discusses the coverage results for demographic and tenure groupings. Section 6 discusses the results for states and other governmental entities. Sections 7 and 8 summarize the results for census operations.

## 2. CCM Coverage Estimation

This section provides a brief overview of the methodology for net coverage and estimation of the components of census coverage. For more information, see the forthcoming methods document.

### 2.1. *Net Coverage Estimation*

Like the 1990 Post-Enumeration Survey (PES) and the 2000 A.C.E., the 2010 CCM evaluated net coverage by using dual system estimation to generate population estimates of housing units and persons in housing units. For the CCM, we used logistic regression modeling instead of

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<sup>1</sup> In addition to operational assessments and evaluations, the Census Bureau has relied on two principal methods to evaluate the coverage of the decennial census. One method is the survey-based approach, which is the topic of this report. The other method is Demographic Analysis.

post-stratification to produce synthetic estimates of net coverage. The parameters in the model were based on a national sample and then applied to each individual census case. Information collected at the individual level can be easily used in conjunction with information collected at an aggregate level to provide estimates even for small domains with little or no sample. The logistic regression modeling allowed us to reduce the correlation bias in the total population estimates without having to include unnecessary higher-order interactions as when forming post-stratification cells. This allowed us to include additional variables in the model that can potentially help reduce synthetic error for national, state, county, and place estimates.

As part of this estimation, we implemented operations to account for missing data and to reduce the sampling and nonsampling errors in the estimates. This included imputation of missing characteristics, imputation of unresolved statuses, a weight adjustment for non-interviewed P-sample housing units, and an adjustment to minimize correlation bias using results derived from Demographic Analysis estimates.

For person estimation, we used the same independent variables (main effects) and interactions in each logistic regression model. See Olson (2012) for more details on the logistic regression models. The main effects used in the models include

- Race/Hispanic Origin domains
- Tenure
- Age/Sex groups
- Region of the country
- Metropolitan Statistical Area Size by Type of Enumeration Area
- Presence of Spouse in Household
- Relationship to Householder
- Tract-level Census Participation Rates
- Bilingual and Replacement Questionnaire Mailing Areas

Estimates of net undercount are the difference of the dual system estimate and the census count. A positive estimate indicates a net undercount and a negative estimate indicates a net overcount.

$$Net\ Undercount = DSE - Census$$

where DSE is the dual system estimate

We also report the estimate of percent net undercount. The percent net undercount is the net undercount estimate calculated above divided by the DSE expressed as a percentage.

$$Percent\ Net\ Undercount = \left( \frac{DSE - Census}{DSE} \right) \times 100$$

## 2.2. *Components of Census Coverage Estimation*

While we continue to produce estimates of net coverage, for the first time we provide components of census coverage. The four components of census coverage are

- correct enumerations,
- erroneous enumerations,
- whole-person census imputation counts, and
- omissions.

### 2.2.1. *Correct Enumerations for Components*

In the CCM, we evaluated a sample of the data-defined<sup>2</sup> enumerations in the census to determine if they were correct enumerations. For a person to be a correct enumeration for our component estimation, the first requirement was that the census person record should have been enumerated in a housing unit in the census. If a person was determined to have been included in the census two or more times, the CCM had procedures to determine which enumeration was correct based on the Person Interview and Person Followup information. The other enumerations were classified as erroneous enumerations.

Another requirement was geographic correctness. An enumeration was considered to be correct if the record was enumerated in the appropriate geographic area. Since we produced national, state, county, and place estimates, the definition of the correct geographic area changed depending on the area being evaluated.

For national-level estimates, the geographic requirement for the enumeration to be considered correct was if the record corresponded to a person that should have been included anywhere in the United States in the coverage universe (that is, in a housing unit outside of Remote Alaska areas). This criterion applied to the estimates of the total population and other domains like demographic characteristics and census operational areas. For state, county, and place estimates, the definition narrowed to require that the person should have been enumerated in that particular area.

This definition of correct enumeration for components of census coverage is different from the definition of correct enumeration used for estimating net coverage. The definition for net coverage is stricter, as it applies additional criteria to minimize the bias in the dual system estimates. For net coverage estimation, the record must (1) have sufficient identification information including reporting a valid name and two other characteristics, and (2) be enumerated in the specific geographic area referred to as the block cluster search area<sup>3</sup>. For component estimation, we used a different definition that is more suitable for national, state, county, and place estimates.

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<sup>2</sup> A data-defined enumeration in the census has two reported characteristics, one of which can be name.

<sup>3</sup> The block cluster search area is the block cluster and the one ring of surrounding census blocks. A block cluster is one or more contiguous blocks and averages 30 housing units.

In addition to generating estimates of levels of correct enumerations, the CCM produced percentages as well. For correct enumeration percentages, the denominator is the census count.

### *2.2.2. Erroneous Enumerations for Components of Census Coverage*

We estimated the number of erroneous enumerations. When examining the reasons that a case was erroneous, we report the results for three categories:

- Persons that should not have been enumerated at all (“Other Reasons”)
- Erroneous enumerations due to duplication
- Enumerations included in the wrong location

There are several types of erroneous enumerations combined into the first category of “Other Reasons.” Some of these include persons who should have been enumerated in a group quarters, who were born after Census Day or who died before Census Day, and fictitious enumerations.

The second group is erroneous enumerations due to duplication. A person enumerated two or more times in the census for whom at least one of those enumerations was in a housing unit falls into this category. For the situation where the person was enumerated correctly in a group quarters and enumerated erroneously in a housing unit, the person enumeration in the housing unit was an erroneous enumeration due to duplication.

The third category of erroneous enumerations, those included in the wrong location, by definition does not exist for national estimates such as total population or race groups. For state, county, and place estimates, the CCM narrowed the geographic criterion of where the person should have been counted to determine whether the person is treated as erroneous or correct based on the appropriate geographic area of interest.

In addition to generating estimates of levels of erroneous enumerations, the CCM produced percentages as well. For erroneous enumeration percentages, the denominator is the census count.

### *2.2.3. Whole-Person Census Imputations*

We tallied the number of whole-person census imputations. All of the characteristics were imputed for these census person records.

The CCM program was not in a position to assess whether an individual whole-person census imputation was correct or erroneous because, in large part, there was no practical way to follow up on records for which all information was imputed. Therefore, this report provides the count of whole-person imputations. Table 1 provides the five types of imputation cases included in the count.

In addition to tallying the number of whole-person census imputations, the CCM produced percentages as well. For these percentages, the denominator is the census count.



Table 1. Whole-Person Census Imputation Categories

Count Imputation	
1.	Status Imputation - No information about the housing unit; housing unit imputed as occupied, vacant, or non-existent. Those imputed as non-existent were removed from the census files.
2.	Occupancy Imputation - Existence of housing unit confirmed, but no information as to occupancy status; imputed as occupied or vacant.
3.	Household Size Imputation - Occupied status confirmed, but no information as to household count; the household population count was imputed.
Population Count Already Known for the Housing Unit	
4.	Whole Household - Population count known; all characteristics imputed for the entire household.
5.	Partial Household - Population count known; all characteristics imputed for some, but not all, persons in the household.

Note: Any housing unit imputed as occupied during count imputation also had its household population count imputed, which resulted in whole-person census imputations.

#### 2.2.4. Omissions

We estimated the total number of omissions in the census as well. A direct estimation method for the number of omissions is not available. In the past, different definitions and estimators of omissions were used. The CCM omission estimator subtracts the estimate of correct enumerations from the population estimate.

$$Omissions = DSE - Correct Enumerations$$

As whole-person census imputations are a separate category from correct enumerations and erroneous enumerations, our definition of omissions effectively treats these imputations as omissions. In effect, omissions are people who *should have been* enumerated in the United States, but were not. Many of these people may have been accounted for in the whole-person census imputations. We believe that most of the imputed people may have been correct if we could have collected a valid name and sufficient characteristics.

In addition to reporting levels, the CCM reports the percentage of omissions as well. This is the percentage of the true population that is omissions.

$$Omission Percentage = \left( \frac{Omissions}{DSE} \right) \times 100$$

#### 2.3. Statistical Testing

Statements of comparison in this report are statistically significant at the 90% confidence level ( $\alpha = 0.10$ ) using a two-sided test. “Statistically significant” means that the difference is not likely due to random chance alone. In the tables, net undercount and percent net undercount estimates that are significantly different from zero are identified by an asterisk (\*).

### 3. Limitations

In this section, we provide statements about the data that are worth noting when reading this document.

#### 3.1. *Measures of Uncertainty Accounting for Sampling and Synthetic Error*

Because the CCM estimates are based on a sample survey, they are subject to sampling error. As a result, the sample estimates will differ from what would have been obtained if all housing units had been included in the survey. The standard errors provided with the data reflect variation due to sampling. For the component estimation of correct and erroneous enumerations, we used a ratio-adjusted design-based estimator that was benchmarked to a larger aggregate estimate. The standard error measures the uncertainty of this direct estimate.

In applying dual system estimation of the population, we created a “synthetic” estimator as described in the methods. Thus, the estimation domains are subject to a potential synthetic bias. The bias in the synthetic estimator represents the difference, if any, in the domain's population estimate one would obtain by applying the synthetic model versus by simply tabulating over the true population (if it were known). For most estimation domains, main effects and interactions related to the domain were included in these models to minimize the synthetic bias in the population estimates.

For governmental entities like states, counties, and places, there was concern that the standard errors for the population estimates, net coverage, and omissions would underestimate the true error by not capturing the synthetic bias. For these governmental entities, we produced estimates of root mean squared error for the total population estimates, net coverage, and omissions. These estimates of error add an estimate of synthetic bias to the sampling variance of the synthetic estimates that use fixed-effect logistic regression.

#### 3.2. *Other Sources of Nonsampling Error*

Nonsampling error is a catch-all term for errors that are not a function of selecting a sample. It includes errors that can occur during data collection and the processing of survey data. For example, while an interview is in progress, the respondent may make an error answering a question, or the interviewer may make an error asking a question or recording the answer. Sometimes interviews fail to take place or households provide incomplete data. The CCM had low levels of missing data. Appropriate estimation procedures were used to account for those instances. Other examples of nonsampling error in the 2010 CCM include matching error, modeling error, synthetic error, and classification error. Unlike sampling error, nonsampling error is difficult to quantify.

## 4. Summary of Coverage for the Total Household Population

This section summarizes the net coverage and the components of census coverage for the total household population. These include analysis of the estimates of erroneous enumerations due to duplication and whole-person census imputations.

### 4.1. Net Coverage

The national estimate of the net overcount for the 2010 Census was 36,000 persons or 0.01%. The 2010 Census did not have a significant net undercount or overcount. That is, the CCM population estimate was not significantly different from the census count. Table 2 shows the results for the past three census coverage measurement surveys. The 1990 survey measured a net undercount, and the 2000 survey measured a net overcount.

Table 2. National Estimates of Net Undercount by Year

Year	Census Count (Thousands)	Net Undercount		Percent Net Undercount	
		Estimate (Thousands)	Standard Error (Thousands)	Estimate (%)	Standard Error (%)
2010	300,703	-36	429	-0.01	0.14
2000	273,587	-1,332*	542	-0.49*	0.20
1990	248,710	3,994*	488	1.61*	0.20

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

A negative net undercount or percent net undercount estimate indicates an overcount.

An asterisk (\*) denotes a (percent) net undercount that is significantly different from zero.

The 2000 and 1990 estimates are from Kostanich (2003).

### 4.2. Components of Census Coverage

This section summarizes the national components of census coverage. Section 4.2.1 summarizes the components seen at the national level. Section 4.2.2 provides additional analysis for erroneous enumerations due to duplication including comparisons to duplication estimates in Census 2000. Section 4.2.3 provides additional analysis of the whole-person census imputations.

#### 4.2.1. Overall Summary

Table 3 shows the estimates of the components of census coverage for the household population. The first part of the table shows how the census household population count of 300.703 million was distributed among correct enumerations, erroneous enumerations, and whole-person census imputations. We estimated that 284.7 million (94.7%) were correct enumerations, 10.0 million (3.3%) were erroneous enumerations, and 6.0 million (2.0%) were whole-person census imputations.

We estimated 284.7 million correct enumerations using the geographic requirement that the person was in a housing unit anywhere in the nation. Table 3 provides a further breakdown of this estimate using stricter geographic requirements.

CCM estimated that 280.9 million (93.4%) people were included in the correct CCM block cluster search area. This geographic location requirement is the CCM sample block cluster and the one ring of blocks that surround the sample block cluster. See Section 2.2.1 for more information on the CCM search area.

For the remaining three geographic requirements, CCM estimated that 2.0 million (0.7%) people were enumerated in the same county as where the person should have been enumerated. Another 830,000 (0.3%) people were enumerated in the same state but should have been included in a different county within that state. Finally, 948,000 (0.3%) people should have been enumerated in a different state.

The first part of the table continues by providing details about the 10.0 million erroneous enumerations in the 2010 Census. Of the total, 8.5 million (2.8%) were erroneous enumerations due to duplication and 1.5 million (0.5%) were erroneous enumerations for other reasons. The third breakdown of the census count is the 6.0 million (2.0%) whole-person census imputations.

The next part of the table summarizes the CCM population estimates. The CCM estimated that the household population was 300.667 million people resulting in an overcount of 36,000. The CCM population estimate is broken into two groups: correct enumerations and omissions. The correct enumerations estimate is the same 284.7 million shown earlier. Based on the CCM estimate of 300.667 million, the correct enumeration percentage of the true population is 94.7%.

The CCM estimated that 16.0 million people were omitted from the census. Omissions are people who should have been enumerated in the United States, but were not. Many of these people may have been accounted for by the 6.0 million whole-person census imputations.

Table 3. Components of Census Coverage for the United States Household Population (in Thousands)

Component of Census Coverage	Estimate	Standard Error	Percent	Standard Error
Census Count	300,703	0	100.0	
Correct enumerations <sup>1</sup>	284,668	199	94.7	0.07
Enumerated in the same block cluster <sup>2</sup>	280,852	220	93.4	0.07
Enumerated in the same county, though in a different block cluster	2,039	55	0.7	0.02
Enumerated in the same state, though in a different county	830	34	0.3	0.01
Enumerated in a different state	948	31	0.3	0.01
Erroneous enumerations	10,042	199	3.3	0.07
Due to duplication	8,521	194	2.8	0.06
For other reasons <sup>3</sup>	1,520	45	0.5	0.01
Whole-Person Census Imputations <sup>4</sup>	5,993	0	2.0	0
Estimate of Population from the Census Coverage Measurement <sup>5</sup>	300,667	429	100.0	
Correct enumerations <sup>1</sup>	284,668	199	94.7	0.1
Omissions <sup>6</sup>	15,999	440	5.3	0.1
Net Undercount	-36	429	-0.01	0.14

1. For the national table, someone who should have been counted is considered a correct enumeration if he or she was enumerated anywhere in the United States.

2. More precisely, enumerated in the *search area* for the correct block cluster. For definitions of block cluster and search area, see accompanying text.

3. Other reasons include fictitious people, those born after April 1, 2010, those who died before April 1, 2010, etc.

4. These imputations represent people from whom we did not collect sufficient information. Their records are included in the census count.

5. This number is the CCM estimate of people who should have been counted in the CCM household universe. It does not include people in group quarters or people living in the Remote Alaska type of enumeration area.

6. Omissions are people who *should have been* enumerated in the United States, but were not. Many of these people may have been accounted for in the whole-person census imputations above.

#### 4.2.2. Erroneous Enumerations Due to Duplication

The 8.5 million erroneous enumerations due to duplication for the 2010 Census was larger than the estimated 6.6 million duplicates in Census 2000 (Bray 2012). This section examines how the erroneous inclusion of people in housing units due to duplication compares between 2010 and 2000. First, we examine instances when people were duplicated between housing units. Second, we examine the duplication between people in housing units and group quarters. A duplicate to a group quarters is a person enumerated correctly in a group quarters and erroneously included in the housing unit universe.

Table 4 shows the estimates of person duplication between housing units for 2010 and 2000. The 2010 Census had 8.0 million erroneous enumerations due to duplication between housing units. This was more than the 6.0 million duplicates in Census 2000. The table shows that the 2010 estimates increased for all geographic distances of the duplication. The table also shows results based on the types of return for both housing units. The increase between 2010 and 2000 was concentrated in the situations where there was one mailback/one non-mailback return or both were non-mailback returns.

Table 4. Estimate of Erroneous Enumerations due to Duplication Between Housing Units by Type of Return and Geographic Distance (in thousands)

Geographic Distance	2010				2000 <sup>1</sup>			
	Type of Return <sup>2</sup>			Total	Type of Return			Total
	Both Mailback	One Mailback/ One Non-Mailback	Both Non-Mailback		Both Mailback	One Mailback/ One Non-Mailback	Both Non-Mailback	
Within Collection Block	314 (25)	2,534 (128)	953 (75)	3,801 (160)	398 (23)	2,125 (68)	384 (23)	2,907 (83)
Within Collection Tract, Different Block	76 (13)	684 (86)	258 (38)	1,018 (106)	97 (8)	406 (24)	123 (12)	625 (31)
Within County, Different Tract	370 (22)	929 (45)	350 (31)	1,649 (67)	401 (17)	699 (27)	110 (9)	1,210 (34)
Within State, Different County	334 (26)	381 (24)	137 (15)	852 (36)	306 (14)	315 (18)	43 (5)	664 (24)
Different State	274 (23)	326 (28)	86 (11)	686 (37)	266 (14)	242 (15)	41 (20)	549 (31)
Total	1,369 (49)	4,854 (154)	1,783 (93)	8,006 (195)	1,468 (36)	3,786 (83)	701 (35)	5,955 (109)

1. The 2000 estimates are from Bray (2012).

2. Type of return was the selected form type of the census housing unit.

Table 5 shows the erroneous enumerations due to duplication of people between housing units and group quarters. While person duplication between housing units increased between 2000 and 2010, the erroneous enumerations due to duplication to group quarters decreased by 101,000. The reduction was concentrated within the same county areas and smaller geographic distances.

Table 5. Estimate of Erroneous Enumerations due to Duplication Between Housing Units and Group Quarters by Type of Return and Geographic Distance (in thousands)

Geographic Distance	2010			2000 <sup>1</sup>		
	Type of Return		Total	Type of Return		Total
	Mailback	Non-Mailback		Mailback	Non-Mailback	
Within Collection Block	14 (9)	27 (12)	41 (16)	53 (11)	20 (6)	73 (15)
Within Tract, Different Block	13 (3)	3 (1)	16 (4)	24 (5)	18 (9)	42 (21)
Within County, Different Tract	82 (10)	57 (7)	138 (12)	163 (32)	56 (8)	219 (38)
Within State, Different County	129 (12)	108 (13)	237 (18)	152 (7)	38 (4)	190 (7)
Different State	50 (7)	33 (6)	83 (9)	75 (6)	17 (3)	92 (6)
Total	287 (20)	228 (20)	515 (29)	467 (35)	149 (14)	616 (43)

1. The 2000 estimates are from Bray (2012).

### 4.2.3. Whole-Person Census Imputations

CCM tallied 6.0 million whole-person census imputations (2.0%) in the 2010 Census. This was about the same magnitude and percentage as the 5.8 million whole-person census imputations that were in Census 2000.

While the total magnitudes were similar, the underlying types of imputation changed. Table 6 shows the whole-person imputations by type for the 2010 Census and Census 2000. The table shows similar magnitudes for those done by count imputation and when a population count was reported for the unit.

For the 2010 Census, there were 4.61 million person records where imputation was required for the whole household of people and 220,000 records where it was a partial-household situation where some but not all persons required imputation. In Census 2000, the corresponding numbers were 2.27 million and 2.33 million records, respectively.

Table 6. Whole-Person Census Imputations By Type

Whole-Person Census Imputations	2010		2000	
	Count (millions)	Percent	Count (millions)	Percent
Total	5.99	2.0	5.77	2.1
Count Imputation	1.16	0.4	1.17	0.4
Status Imputation	0.24	0.1	0.42	0.2
Occupancy Imputation	0.05	0.0	0.26	0.1
Household Size Imputation	0.87	0.3	0.50	0.2
Population Count Already Known	4.83	1.6	4.60	1.7
Whole Household	4.61	1.5	2.27	0.8
Partial Household	0.22	0.1	2.33	0.9

Percent is out of the total census count excluding persons in group quarters and persons in Remote Alaska. The 2000 data are from Wetrogan and Cresce (2001).

## 5. Census Coverage for Demographic and Tenure Groupings

This section summarizes the census coverage for demographic and tenure groupings. These include estimates of coverage by race, Hispanic origin, age, sex, and tenure.

### 5.1. Census Coverage for Race and Hispanic Origin

The CCM continued to measure differential net coverage by race and Hispanic origin in the 2010 Census. Table 7 shows the percent net undercount estimates based on assigning a person to one of seven mutually exclusive Race/Hispanic Origin domains as described in Mulligan and Davis (2012). Both the 2000 and 1990 surveys released net coverage estimates for these specially defined race/origin domains; the two previous surveys did not produce separate estimates by race or by Hispanic origin. To compare with the previous surveys, we produced the 2010 net coverage estimates for the Race/Hispanic Origin domains.



The Non-Hispanic Black domain continued to be undercounted (2.07%). This domain has had a significant net undercount for the past three coverage surveys. Both the Hispanic domain and the American Indian on Reservation domains had undercounts in 2010 as well (1.54% and 4.88%, respectively). These two domains had undercounts in 1990, but the estimates in 2000 were not statistically different from zero. The Non-Hispanic White domain continued to be overcounted (-0.84%). The 2010 American Indian on Reservation net undercount estimate was higher than the 2000 estimate. For the other six domains, the comparisons of the 2010 percent net undercount estimate to the 2000 estimate were not statistically significant.

Table 7. Estimates of Percent Net Undercount by Race/Origin Domain

Race/Origin Domain	2010		2000		1990	
	Estimate (%)	Standard Error (%)	Estimate (%)	Standard Error (%)	Estimate (%)	Standard Error (%)
U.S. Total	-0.01	0.14	-0.49*	0.20	1.61*	0.20
Non-Hispanic White	-0.84*	0.15	-1.13*	0.20	0.68*	0.22
Non-Hispanic Black	2.07*	0.53	1.84*	0.43	4.57*	0.55
Non-Hispanic Asian <sup>1</sup>	0.08	0.61	-0.75	0.68	2.36*	1.39
American Indian on Reservation	4.88*	2.37	-0.88	1.53	12.22*	5.29
American Indian off Reservation <sup>2</sup>	-1.95	1.85	0.62	1.35	0.68*	0.22
Native Hawaiian or Pacific Islander	1.34	3.14	2.12	2.73	2.36*	1.39
Hispanic	1.54*	0.33	0.71	0.44	4.99*	0.82

Note: This table shows the results using the mutually exclusive Race/Origin domain assigned for CCM Estimation. For estimates of race alone-or-in-combination or Hispanic origin, see Table 8.

An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

The 2000 and 1990 estimates are from Kostanich (2003).

1. For 1990, Asian or Pacific Islander was a single Race/Hispanic Origin Domain. Therefore, for Non-Hispanic Asian and for Hawaiian or Pacific Islander, the net undercount and standard error are repeated.

2. For 1990, AI off Reservation was included in the Non-Hispanic White domain. Therefore, the net undercount and standard error for these domains are identical.

The Race/Origin domain results in Table 7 were based on a mutually exclusive assignment of persons to only one of the seven domains. This results, for example, in an estimate for the Non-Hispanic Black population rather than for Black alone-or-in-combination. Since people could report more than one race, the CCM also produced net coverage estimates using race alone-or-in-combination and for Hispanic origin. This approach allowed a person to fall into multiple categories and estimates based on multiple race and Hispanic origin reporting.

Table 8 shows the 2010 percent net undercount estimates for race alone-or-in-combination and Hispanic origin. Additional estimates are shown for the Non-Hispanic White alone and American Indian and Alaskan Native populations. For the American Indian and Alaskan Native alone-or-in-combination population, the estimates are broken down by geographic area. These geographies indicate whether this population lives on an American Indian Reservation, on an American Indian Area<sup>4</sup> off reservation, or in the remainder of the nation. While the overall result was not significant, the American Indian and Alaskan Native alone-or-in-combination population that lived on American Indian Reservations had a 4.88% undercount in 2010. Because of the high overlap of populations when comparing Race/Origin domain assignments to race

<sup>4</sup> American Indian Areas are lands considered (either wholly or partially) on an American Indian reservation/trust land, Oklahoma Tribal Statistical Area, Tribal Designated Statistical Area, or Alaska Native Village Statistical Area.



alone-or-in-combination or Hispanic origin reporting, several percent net undercount estimates in Table 7 and Table 8 are about the same or differ only slightly.

Table 8. Estimates of Percent Net Undercount by Race and Hispanic Origin

Race or Hispanic Origin	Estimate (%)	Standard Error (%)
U.S. Total	-0.01	0.14
Race alone-or-in-combination with one or more other races		
White	-0.54*	0.14
Non-Hispanic White Alone	-0.83*	0.15
Black	2.06*	0.50
Asian	0.00	0.52
American Indian and Alaskan Native	0.15	0.71
On Reservation	4.88*	2.37
American Indian Areas off Reservation	-3.86	2.99
Balance of the U.S.	-0.05	0.58
Native Hawaiian or Pacific Islander	1.02	2.06
Some Other Race	1.63*	0.31
Hispanic Origin	1.54*	0.33

Note: This table shows the results by race alone-or-in-combination and Hispanic origin. A person may fall into several rows based on multiple reporting of race or Hispanic origin. See Table 7 for results by the Race/Origin domains used in CCM Estimation. An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

Table 9 shows the components of census coverage by race reported alone-or-in-combination with other races and Hispanic origin. The Black alone-or-in-combination and Hispanic populations have larger percentages of erroneous enumerations due to duplication (3.6% and 3.2%, respectively) in the 2010 Census than the Non-Hispanic White alone population (2.6%). For omissions, the Black alone-or-in-combination and Hispanic populations have larger percentages (9.3% and 7.7%, respectively) than the Non-Hispanic White alone population (3.8%). Part of the omissions for these two groups may be accounted for by the whole-person census imputations. For imputations, the Black alone-or-in-combination and Hispanic populations have larger percentages (3.1% and 2.4%, respectively) than the Non-Hispanic White alone population (1.6%).

For the American Indian and Alaskan Native population living on reservations, we estimated 4.7% erroneous enumerations due to duplication and 13.7% omissions. Part of this 13.7% may have been accounted by the 4.1% of the census that were whole-person census imputations. For American Indian and Alaskan Natives living on American Indian Areas off reservations, the CCM estimated that 9.7% were erroneous enumerations due to duplication.

Table 9. Components of Census Coverage by Race and Hispanic Origin

Race or Hispanic Origin	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)	Percent Undercount (%)	Omissions (%)
			Duplication (%)	Other Reasons (%)			
U.S. Total	300,703 (0)	94.7 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)	-0.01 (0.14)	5.3 (0.1)
Race alone-or-in-combination with one or more other races							
White	225,547 (0)	95.2 (<0.1)	2.7 (<0.1)	0.4 (<0.1)	1.7 (0)	-0.54* (0.14)	4.3 (0.1)
Non-Hispanic White alone	191,997 (0)	95.4 (<0.1)	2.6 (<0.1)	0.4 (<0.1)	1.6 (0)	-0.83* (0.15)	3.8 (0.1)
Black	40,153 (0)	92.6 (0.2)	3.6 (0.2)	0.7 (<0.1)	3.1 (0)	2.06* (0.50)	9.3 (0.4)
Asian	16,969 (0)	94.7 (0.2)	2.4 (0.2)	0.9 (<0.1)	2.1 (0)	0.00 (0.52)	5.3 (0.5)
American Indian and Alaskan Native	5,056 (0)	92.5 (0.6)	4.1 (0.6)	0.6 (<0.1)	2.9 (0)	0.15 (0.71)	7.6 (0.6)
On Reservation	571 (0)	90.8 (0.6)	4.7 (0.6)	0.4 (<0.1)	4.1 (0)	4.88* (2.37)	13.7 (2.1)
American Indian Areas off Reservation	527 (0)	87.8 (4.1)	9.7 (3.9)	1.0 (0.5)	1.5 (0)	-3.86 (2.99)	8.8 (2.6)
Balance of the U.S.	3,959 (0)	93.4 (0.4)	3.2 (0.4)	0.6 (<0.1)	2.9 (0)	-0.05 (0.58)	6.6 (0.6)
Native Hawaiian or Pacific Islander	1,189 (0)	93.1 (0.6)	3.4 (0.6)	0.8 (0.2)	2.8 (0)	1.02 (2.06)	7.9 (2.0)
Some Other Race	21,448 (0)	92.9 (0.3)	3.5 (0.3)	0.7 (<0.1)	2.9 (0)	1.63* (0.31)	8.6 (0.4)
Hispanic Origin	49,580 (0)	93.7 (0.2)	3.2 (0.2)	0.7 (<0.1)	2.4 (0)	1.54* (0.33)	7.7 (0.3)

A person can be included in multiple rows.

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

## 5.2. Census Coverage by Tenure

The CCM continued to measure differential coverage by tenure. Table 10 shows the net coverage estimates for the past three censuses. Renters continue to be undercounted (1.09%) for the third consecutive coverage survey. Owners in 2010 continue to be overcounted as they were in 2000 but at a lower amount (-0.57% and -1.25%, respectively). For renters, the comparison of the 2010 percent net undercount estimate was not significantly different than the 2000 estimate (1.14%) but was lower than the 1990 net undercount estimate (4.51%).

Table 10. Estimates of Percent Net Undercount by Tenure

Tenure	2010		2000		1990	
	Estimate (%)	Standard Error (%)	Estimate (%)	Standard Error (%)	Estimate (%)	Standard Error (%)
U.S. Total	-0.01	0.14	-0.49*	0.20	1.61*	0.20
Owner	-0.57*	0.12	-1.25*	0.20	0.04	0.21
Renter	1.09*	0.30	1.14*	0.36	4.51*	0.43

A negative percent undercount indicates an overcount.

An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

The 2000 and 1990 estimates are from Kostanich (2003).

Table 11 shows the components of census coverage by tenure. The tenure differential for net coverage is also seen in the components of census coverage. Renters had higher percentages of erroneous enumerations due to duplication (3.7% versus 2.4%), erroneous enumerations due to other reasons (0.7% versus 0.4%), and whole-person census imputations (3.0% versus 1.5%). Renters also had a larger percentage of omissions (8.5% versus 3.7%) than owners.

Table 11. Components of Census Coverage by Tenure

Tenure	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)	Percent Undercount (%)	Omissions (%)
			Duplication (%)	Other Reasons (%)			
U.S. Total	300,703 (0)	94.7 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)	-0.01 (0.14)	5.3 (0.1)
Owner	201,241 (0)	95.7 (<0.1)	2.4 (<0.1)	0.4 (<0.1)	1.5 (0)	-0.57* (0.12)	3.7 (0.1)
Renter	99,463 (0)	92.5 (0.1)	3.7 (0.1)	0.7 (<0.1)	3.0 (0)	1.09* (0.30)	8.5 (0.3)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

### 5.3. Census Coverage by Age and Sex Groups

The CCM measured differential coverage by age and sex. Table 12 shows the net coverage results for 1990, 2000, and 2010. The 18 to 29 year old male and the 30 to 49 year old male populations continued to have undercounts for the third consecutive survey. The 30 to 49 year old females have overcounts for the second consecutive survey. For the past three surveys, both the 50+ male and female populations have had overcounts. Children 0 to 4 were undercounted (0.72%) while children 10 to 17 were overcounted (-0.97%).

Table 12. Estimates of Percent Undercount by Age and Sex

Age and Sex	2010		2000		1990	
	Estimate (%)	Standard Error (%)	Estimate (%)	Standard Error (%)	Estimate (%)	Standard Error (%)
U.S. Total	-0.01	0.14	-0.49*	0.20	1.61*	0.20
0 to 17	-0.33	0.22			3.18*	0.29
0 to 9	0.20	0.29	-0.46	0.33		
0 to 4	0.72*	0.40				
5 to 9	-0.33	0.31				
10 to 17	-0.97*	0.29	-1.32*	0.41		
18 to 29 Males	1.21*	0.45	1.12*	0.63	3.30*	0.54
18 to 29 Females	-0.28	0.36	-1.39*	0.52	2.83*	0.47
30 to 49 Males	3.57*	0.20	2.01*	0.25	1.89*	0.32
30 to 49 Females	-0.42*	0.21	-0.60*	0.25	0.88*	0.25
50+ Males	-0.32*	0.14	-0.80*	0.27	-0.59*	0.34
50+ Females	-2.35*	0.14	-2.53*	0.27	-1.24*	0.29

A negative percent undercount indicates an overcount.

The 2000 A.C.E. Revision II estimated 0 to 9 year olds as a single group.

The 1990 PES estimated 0 to 17 year olds as a single group.

An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

The 2000 and 1990 estimates are from Kostanich (2003).

The CCM estimated the components of census coverage based on the nine age-sex groups shown in Table 13. For children under 18, we estimated erroneous enumeration due to duplication at about 3%. While 18 to 29 males and females had different estimates of percent net undercount, these groups had similar estimates of erroneous enumerations due to duplication and whole-person census imputations. The 18 to 29 males had a large percentage of omissions compared to 18 to 29 females. Males and females 30+ had erroneous enumerations due to duplication percentages between 2.1% and 2.5%. In looking at the percentages of whole-person census imputations for the 18+ population, the percentages decreased as the groups get older.

Table 13. Components of Census Coverage by Age and Sex Groupings

Age and Sex Group	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)	Percent Undercount (%)	Omissions (%)
			Duplication (%)	Other Reasons (%)			
U.S. Total	300,703 (0)	94.7 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)	-0.01 (0.14)	5.3 (0.1)
0 to 4	20,158 (0)	94.0 (0.2)	3.2 (0.2)	0.6 (<0.1)	2.2 (0)	0.72* (0.40)	6.6 (0.3)
5 to 9	20,315 (0)	94.8 (0.1)	3.0 (0.1)	0.2 (<0.1)	2.0 (0)	-0.33 (0.31)	4.9 (0.3)
10 to 17	33,430 (0)	94.7 (0.1)	3.2 (0.1)	0.3 (<0.1)	1.9 (0)	-0.97* (0.29)	4.4 (0.3)
18 to 29 Males	23,982 (0)	91.8 (0.2)	4.0 (0.2)	1.2 (<0.1)	2.9 (0)	1.21* (0.45)	9.3 (0.4)
18 to 29 Females	23,912 (0)	92.2 (0.2)	4.2 (0.2)	0.8 (<0.1)	2.8 (0)	-0.28 (0.36)	7.6 (0.3)
30 to 49 Males	40,256 (0)	94.9 (<0.1)	2.3 (<0.1)	0.6 (<0.1)	2.2 (0)	3.57* (0.20)	8.5 (0.2)
30 to 49 Females	41,815 (0)	95.5 (<0.1)	2.1 (<0.1)	0.3 (<0.1)	2.0 (0)	-0.42* (0.21)	4.1 (0.2)
50+ Males	44,886 (0)	95.5 (<0.1)	2.5 (<0.1)	0.5 (<0.1)	1.5 (0)	-0.32* (0.14)	4.2 (0.1)
50+ Females	51,950 (0)	95.7 (<0.1)	2.5 (<0.1)	0.4 (<0.1)	1.4 (0)	-2.35* (0.14)	2.0 (0.1)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

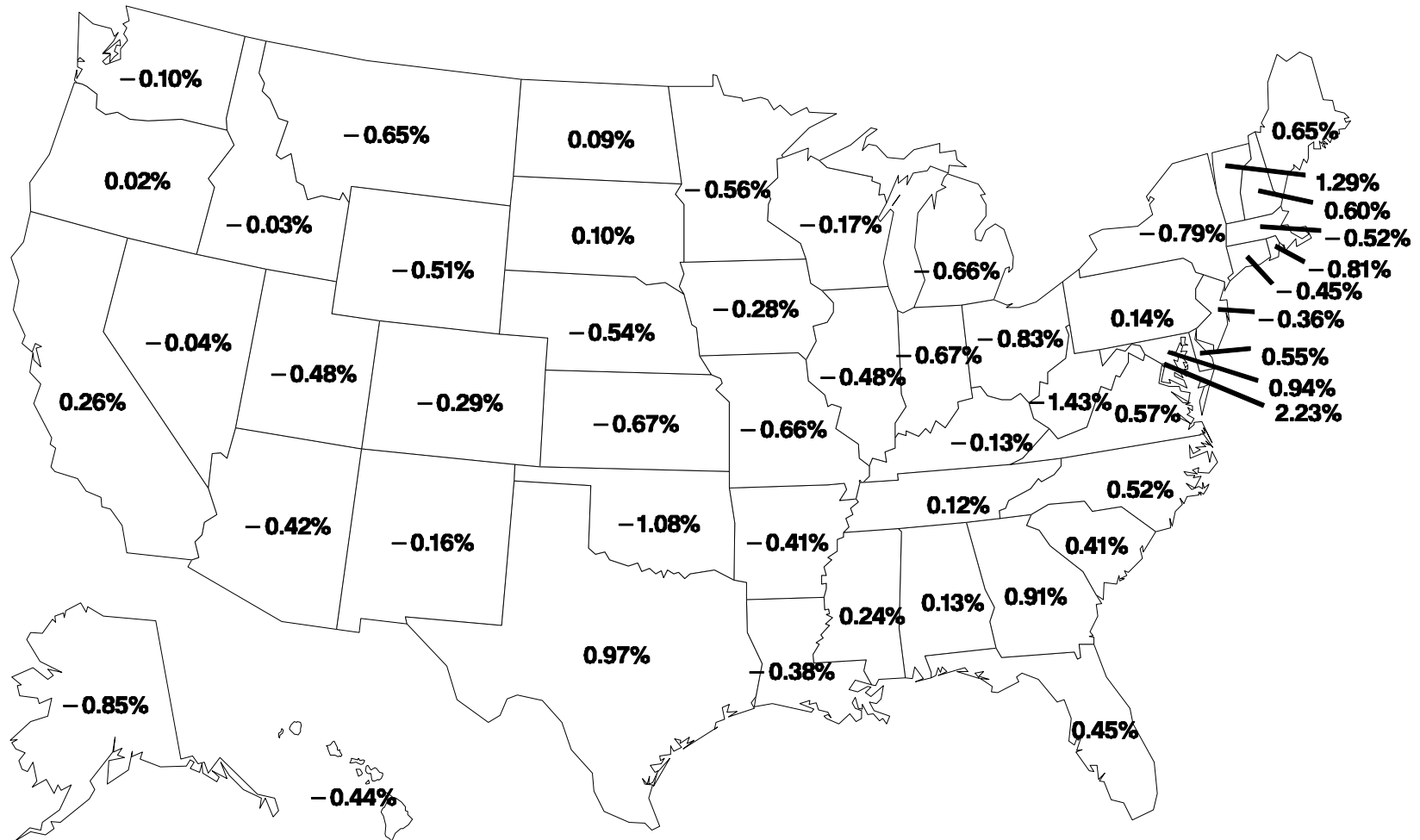
## 6. Census Coverage for States and Other Governmental Entities

The CCM evaluated the net coverage of the fifty states and the District of Columbia shown in Figure 1. For state estimates of net coverage, we produced estimates of the root mean squared error as discussed in the limitations section. Based on the root mean squared error estimates, the estimated percent net undercount for persons for each state and the District of Columbia was not statistically different from zero.

Table 14 summarizes the components of census coverage for the states and the District of Columbia. The CCM produced direct estimates of correct and erroneous enumeration and benchmarked them to national totals. Some of the states have high measures of uncertainty as a result. For more information on the components of census coverage for states, see Keller and Fox (2012).

For governmental entities below the state level, the CCM estimated net coverage for counties and places with a total census population, including persons residing in a group quarters, over 100,000. See Davis and Mulligan (2012) for the net coverage estimates for those areas. The CCM also estimated the components of census coverage for counties and places with a total population over 500,000. See Keller and Fox (2012) for the component estimates for those areas.

# Figure 1: Percent Net Undercount for Persons by State



For each state and the District of Columbia, the estimated percent net undercount is not significantly different from zero. Not significant means that the 90 percent confidence interval based on the estimated root mean squared error includes zero.

Table 14. Components of Census Coverage by State

State	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)	Percent Undercount		Omissions	
			Est. (%)	SE (%)		Est. (%)	RMSE (%)	Est. (%)	RMSE (%)
U.S. Total	300,703.4	94.7	3.3	(<0.1)	2.0	-0.01	0.14	5.3	0.1
Alabama	4,663.9	92.5	4.8	0.8	2.8	0.13	1.24	7.7	1.4
Alaska	629.1	93.7	4.8	0.9	1.4	-0.85	2.22	5.5	2.3
Arizona	6,252.6	92.3	4.3	0.4	3.4	-0.42	1.19	7.3	1.2
Arkansas	2,837.0	94.2	4.2	0.6	1.6	-0.41	1.45	5.4	1.5
California	36,434.1	95.1	3.2	0.1	1.7	0.26	0.73	5.1	0.7
Colorado	4,913.3	93.8	2.9	0.4	3.3	-0.29	1.23	5.9	1.2
Connecticut	3,455.9	95.7	3.0	0.5	1.3	-0.45	1.34	3.9	1.4
Delaware	873.5	94.3	2.8	0.7	2.8	0.55	1.93	6.2	1.9
District of Columbia	561.7	93.1	4.0	0.4	2.9	2.23	2.20	9.0	2.1
Florida	18,379.6	92.9	4.5	0.4	2.7	0.45	0.86	7.5	0.9
Georgia	9,434.5	93.5	3.1	0.3	3.3	0.91	1.04	7.3	1.0
Hawaii	1,317.4	91.8	5.2	0.5	3.0	-0.44	2.08	7.8	2.0
Idaho	1,538.6	94.2	3.2	0.6	2.6	-0.03	1.70	5.8	1.7
Illinois	12,528.9	95.0	3.3	0.4	1.8	-0.48	1.02	4.6	1.1
Indiana	6,296.9	95.7	3.2	0.5	1.1	-0.67	1.14	3.6	1.2
Iowa	2,948.2	97.1	2.0	0.4	0.9	-0.28	1.41	2.6	1.4
Kansas	2,774.0	95.6	3.7	0.7	0.7	-0.67	1.44	3.7	1.5
Kentucky	4,213.5	94.4	3.7	0.5	1.8	-0.13	1.28	5.5	1.3
Louisiana	4,405.9	92.9	4.0	0.5	3.1	-0.38	1.31	6.8	1.3
Maine	1,292.8	96.4	2.5	0.6	1.1	0.65	1.99	4.2	2.0
Maryland	5,635.2	94.9	3.4	0.5	1.8	0.94	1.19	6.0	1.2
Massachusetts	6,308.7	93.8	5.1	0.8	1.1	-0.52	1.15	5.7	1.4
Michigan	9,654.6	94.9	3.5	0.4	1.6	-0.66	1.02	4.5	1.0
Minnesota	5,168.5	95.1	3.9	1.2	1.0	-0.56	1.20	4.4	1.7
Mississippi	2,875.3	91.3	6.7	1.1	1.9	0.24	1.45	8.9	1.7
Missouri	5,814.8	94.9	3.4	0.5	1.8	-0.66	1.19	4.5	1.2
Montana	960.6	93.3	3.8	0.5	2.9	-0.65	2.01	6.1	1.9
Nebraska	1,775.2	96.4	2.4	0.3	1.3	-0.54	1.61	3.1	1.6
Nevada	2,664.4	93.0	2.9	0.3	4.1	-0.04	1.46	6.9	1.4
New Hampshire	1,276.4	95.6	3.3	0.8	1.1	0.60	2.07	5.0	2.1
New Jersey	8,605.0	95.1	3.3	0.4	1.6	-0.36	1.07	4.5	1.1
New Mexico	2,016.6	92.2	4.0	0.7	3.8	-0.16	1.58	7.7	1.6
New York	18,792.4	93.1	4.8	0.3	2.1	-0.79	0.92	6.1	0.9
North Carolina	9,278.2	92.8	4.4	0.7	2.8	0.52	1.03	7.6	1.2
North Dakota	647.5	96.1	2.9	0.7	0.9	0.09	2.17	3.9	2.2
Ohio	11,230.2	95.7	2.9	0.3	1.4	-0.83	1.00	3.5	1.0
Oklahoma	3,639.3	92.6	6.0	0.8	1.4	-1.08	1.40	6.4	1.5
Oregon	3,744.4	96.0	2.4	0.5	1.6	0.02	1.32	4.0	1.4
Pennsylvania	12,276.3	95.6	3.1	0.3	1.2	0.14	0.97	4.5	1.0
Rhode Island	1,009.9	93.3	5.0	0.9	1.7	-0.81	1.91	5.9	2.0
South Carolina	4,486.2	95.2	2.7	0.6	2.1	0.41	1.25	5.2	1.3
South Dakota	780.1	95.2	2.9	0.6	1.9	0.10	2.05	4.9	2.0
Tennessee	6,192.6	94.3	3.5	0.4	2.2	0.12	1.15	5.8	1.2
Texas	24,564.4	94.0	3.5	0.3	2.6	0.97	0.85	6.9	0.8
Utah	2,717.7	94.6	4.0	1.6	1.4	-0.48	1.44	4.9	2.1
Vermont	600.4	95.9	3.7	0.7	0.5	1.29	2.43	5.4	2.4
Virginia	7,761.2	94.7	3.3	0.4	1.9	0.57	1.06	5.8	1.1
Washington	6,585.2	95.4	2.9	0.3	1.6	-0.10	1.14	4.5	1.1
West Virginia	1,803.6	91.0	7.7	2.0	1.3	-1.43	1.70	7.7	2.6
Wisconsin	5,536.8	95.7	3.1	0.4	1.2	-0.17	1.20	4.1	1.2
Wyoming	549.9	93.2	4.2	0.7	2.6	-0.51	2.31	6.4	2.3

The standard error of the percent correct enumeration estimate is the same as that of the percent erroneous enumeration estimate.

For percent undercount and percent omissions, we produced estimates of the root mean squared error (RMSE).

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

For each state and the District of Columbia, the estimated percent net undercount is not significantly different from zero.

## **7. Census Coverage for Census Operational Areas**

This section summarizes the coverage results for geographic areas associated with how the census was conducted. This includes Type of Enumeration Area (TEA), Bilingual Mailing areas, and Replacement Mailing areas.

### *7.1. Type of Enumeration Area*

The Census Bureau uses TEA to efficiently enumerate people living in various parts of the country. The TEA accounts for how we obtained addresses and conducted the census in an area. We provide estimates by combining six TEAs into three main categories. (The Remote Alaska TEA is out of scope.)

The first was “Mailout/Mailback,” which included the Mailout/Mailback and the Military Mailout/Mailback TEAs. We mailed questionnaires to the housing units and instructed respondents to return the form by mail.

The second category was the “Update/Leave,” which included the Update/Leave and the Urban Update/Leave TEAs. A census worker updated the address list and delivered questionnaires to each address on the updated list. Respondents were to return the form by mail.

The third was the “Update/Enumerate,” which included the Remote Update/Enumerate and the Update/Enumerate TEAs. A census enumerator updated the address list and conducted the enumeration at each housing unit on the updated list.

Table 15 shows that the Update/Leave TEAs had an overcount (1.37%) while Update/Enumerate TEAs had an undercount (7.87%). For the components of census coverage, the table shows that Update/Leave areas had a high percentage of erroneous enumerations due to duplication (4.7%). The Update/Enumerate areas had a high percentage of whole-person census imputations (5.3%) and omissions (16.0%).



Table 15. Components of Census Coverage by Type of Enumeration Area

Type of Enumeration Area Group	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)	Percent Undercount (%)	Omissions (%)
			Duplication (%)	Other Reasons (%)			
U.S. Total	300,703 (0)	94.7 ( $<0.1$ )	2.8 ( $<0.1$ )	0.5 ( $<0.1$ )	2.0 (0)	-0.01 (0.14)	5.3 (0.1)
Mailout/Mailback	278,553 (0)	94.8 ( $<0.1$ )	2.7 ( $<0.1$ )	0.5 ( $<0.1$ )	2.0 (0)	0.02 (0.14)	5.2 (0.1)
Update/Leave	20,076 (0)	92.7 (0.3)	4.7 (0.3)	0.5 ( $<0.1$ )	2.2 (0)	-1.37* (0.67)	6.1 (0.6)
Update/Enumerate	2,074 (0)	91.1 (0.5)	3.0 (0.4)	0.5 (0.2)	5.3 (0)	7.87* (3.13)	16.0 (2.7)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

## 7.2. Bilingual Mailing Areas

For the 2010 Census, the Census Bureau mailed a bilingual (English and Spanish) census questionnaire to housing units in select areas that could require Spanish language assistance to complete their census form. For more information on bilingual mailing, see Bentley (2008) or Rothhaas et al. (2011). We estimated coverage for the areas that received the bilingual questionnaire versus the remainder of the country. Table 16 shows that the Bilingual Mailing areas had a 0.80% net undercount. For components, the Bilingual Mailing areas had a higher percentage of erroneous enumerations due to duplication than the remainder of the country. In Bilingual Mailing areas, Hispanics had a 1.33% net undercount while the Non-Hispanic population had a net overcount of 0.15%. The 1.33% net undercount for Hispanics in the Bilingual Mailing areas was not significantly different than the 1.72% net undercount of Hispanics in the balance of the country.

Table 16. Components of Census Coverage by Bilingual Mailing Area

Bilingual Mailing Area	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)	Percent Undercount (%)	Omissions (%)
			Duplication (%)	Other Reasons (%)			
U.S. Total	300,703 (0)	94.7 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)	-0.01 (0.14)	5.3 (0.1)
Bilingual Mailing Area	35,204 (0)	93.5 (0.2)	3.5 (0.2)	0.7 (<0.1)	2.3 (0)	0.80* (0.40)	7.3 (0.3)
Hispanic	22,498 (0)	93.3 (0.3)	3.8 (0.3)	0.7 (<0.1)	2.2 (0)	1.33* (0.42)	7.9 (0.4)
Non-Hispanic	12,706 (0)	93.8 (0.3)	3.0 (0.3)	0.6 (<0.1)	2.6 (0)	-0.15 (0.50)	6.0 (0.5)
Balance of U.S.	265,499 (0)	94.8 (<0.1)	2.7 (<0.1)	0.5 (<0.1)	1.9 (0)	-0.12 (0.16)	5.1 (0.1)
Hispanic	27,082 (0)	94.1 (0.2)	2.7 (0.2)	0.6 (<0.1)	2.6 (0)	1.72* (0.42)	7.6 (0.4)
Non-Hispanic	238,418 (0)	94.9 (<0.1)	2.7 (<0.1)	0.5 (<0.1)	1.9 (0)	-0.33* (0.16)	4.8 (0.1)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

### 7.3. Replacement Mailing Areas

For 2010, the Census Bureau mailed a replacement mailing package to some housing units in Mailout/Mailback areas of the country that had low mail response in Census 2000. The replacement mailing strategy used a combination of blanketed and targeted distribution. Areas with low response in 2000 had the blanketed distribution, so all housing units in these areas received a replacement mailing. For areas with mid-range response in 2000, only nonresponding housing units received a replacement mailing; this is referred to as targeted distribution. The balance of the United States did not receive a replacement questionnaire in the mail. We provide separate estimates for the two types of replacement mailing areas and the balance of the United States. For more information on the replacement mailing areas and the official counts, see Letourneau (2010).

Table 17 shows the coverage estimates for replacement mailing areas. For whole-person census imputations, the blanketed areas had a higher percentage than the targeted or the remaining areas in the United States. The percentage of erroneous enumerations due to duplication was 4.2% for the blanketed areas, 3.2% for targeted areas, and 2.3% for the balance of the United States.

The high percentage of erroneous enumerations due to duplication in the blanketed and targeted areas raised a concern that mailing a replacement form to a housing unit led to this duplication. However, CCM estimated that only 184,000 of the 8.5 million total duplicates were situations where the duplication was within the same housing unit.

Table 17. Components of Census Coverage by Replacement Mailing Area

Replacement Mailing Treatment	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumeration		Whole-Person Census Imputations (%)	Percent Undercount (%)	Omissions (%)
			Duplication (%)	Other Reasons (%)			
U.S. Total	300,703 (0)	94.7 ( $<0.1$ )	2.8 ( $<0.1$ )	0.5 ( $<0.1$ )	2.0 (0)	-0.01 (0.14)	5.3 (0.1)
Blanketed	53,651 (0)	92.2 (0.2)	4.2 (0.2)	0.7 ( $<0.1$ )	2.9 (0)	0.38 (0.45)	8.2 (0.4)
Targeted	65,952 (0)	94.2 (0.2)	3.2 (0.2)	0.6 ( $<0.1$ )	2.1 (0)	0.19 (0.36)	6.0 (0.3)
Balance of U.S.	181,100 (0)	95.6 ( $<0.1$ )	2.3 ( $<0.1$ )	0.4 ( $<0.1$ )	1.7 (0)	-0.20 (0.15)	4.2 (0.1)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

An asterisk (\*) denotes a percent net undercount that is significantly different from zero.

## 8. Census Coverage for Census Operational Outcomes

This section summarizes the components of census coverage for person records based on the result of the census operations. This includes Mail Return Status, Nonresponse Followup (NRFU), and Coverage Followup (CFU). The components of census coverage discussed are correct enumerations, erroneous enumerations, and whole-person census imputations. Because operational outcomes are characteristics of the census records that we cannot measure in the P sample, we cannot generate dual system estimates for census operational outcomes. Therefore, this section does not show estimates of net coverage or omissions.

### 8.1. Mail Return Status

The CCM estimated census coverage by mail return status of the housing unit where the person was enumerated. While most people in a housing unit for which we have a valid mail return were included on the mail return for that unit, some of the people in that housing unit were enumerated in a subsequent census operation. This analysis does not differentiate between these cases.

For housing units that were part of the mail return universe and did return a questionnaire, Table 18 shows that the components of census coverage were about the same across the various dates of return. The percentage of whole-person census imputations was very small when a form was returned.

There were 61 million person records in housing units that were mail-return eligible but did not have a valid return. Further, these housing units were in mailback areas, had pre-identified adequate address information for mailout, and were not undeliverable as addressed (UAA). For these cases without a valid return, we estimated that 3.7% were erroneous enumerations due to duplication and 6.9% required whole-person census imputations. For more information on the mailback operation, official counts, and an assessment of the mail return and mail response rates, see Letourneau (2012).

The last row of the table shows the component structure of the 18 million person records who were not in the mail return universe. These include the enumerations in housing units a) in Update/Enumerate or Remote Update/Enumerate TEAs, b) in mailback areas with pre-identified, inadequate address information for mailing, or c) determined to be UAA. For these 18 million census records, 11.0% were erroneous enumerations due to duplication, and 7.1% were whole-person census imputations.

Table 18. Components of Census Coverage by Mail Return Date

Mail Return Date	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)
			Duplication (%)	Other Reasons (%)	
U.S. Total	300,703	94.7	2.8	0.5	2.0
	(0)	(<0.1)	(<0.1)	(<0.1)	(0)
Valid Returns					
2/25-3/17	8,065	97.4	2.1	0.3	0.2
	(0)	(0.3)	(0.3)	(<0.1)	(0)
3/18-3/24	83,659	98.1	1.4	0.3	0.2
	(0)	(<0.1)	(<0.1)	(<0.1)	(0)
3/25-3/31	65,740	97.5	1.9	0.4	0.2
	(0)	(<0.1)	(<0.1)	(<0.1)	(0)
4/1 - 4/7	31,060	96.9	2.4	0.5	0.3
	(0)	(0.2)	(0.1)	(<0.1)	(0)
4/8 - 4/15	14,990	96.5	2.7	0.5	0.3
	(0)	(0.2)	(0.2)	(<0.1)	(0)
4/16 - 4/30	13,267	96.1	3.0	0.5	0.4
	(0)	(0.3)	(0.3)	(<0.1)	(0)
5/1 - 9/7	4,174	96.5	2.4	0.6	0.5
	(0)	(0.4)	(0.3)	(0.1)	(0)
No Valid Return	61,307	88.6	3.7	0.9	6.9
	(0)	(0.1)	(0.1)	(<0.1)	(0)
Not in Mail Return Universe	18,442	81.2	11.0	0.8	7.1
	(0)	(0.8)	(0.8)	(<0.1)	(0)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

## 8.2. Nonresponse Followup Operations

The 2010 NRFU Operation included four 2010 Census field operations:

- NRFU
- NRFU Reinterview
- NRFU Vacant Delete Check, and
- NRFU Residual

The NRFU field operation primarily involved census enumerators interviewing and verifying the status of housing units in areas that received a mailback 2010 Census questionnaire but did not respond by mail. The NRFU Reinterview operation was a quality control check on the NRFU enumerator's work. The NRFU Vacant Delete Check (VDC) operation verified housing units

determined to be vacant or nonexistent during NRFU. Additionally, the VDC operation included a first-time enumeration of housing units.

The NRFU Residual operation came about because monitoring of the NRFU field operation detected a potentially large number of occupied housing units lacking information about the number of people living in the housing unit. The NRFU Residual operation was the last attempt to complete a full interview for this type of unit. Its workload also included housing units from the NRFU field operation for which a questionnaire was completed, but no data were captured for the case in the data capture system. Jackson et al. (2012) assesses the 2010 NRFU operation and provides official workload totals and more detailed information about the operation. Differences in counts between the census assessment and the CCM occur because we evaluated only the persons included in the final census while the NRFU assessment covers persons and housing units deleted during census processing. Keller and Fox (2012) have additional breakdowns of the components of census coverage for cases in the NRFU operation not shown here.

Table 19 shows the components of census person coverage focusing on whether the housing unit was included in the NRFU or the VDC field operations. Most persons in housing units that were part of the NRFU field operation but not in VDC were in housing units that were worked in May and June. The table shows that 84.6% of the June cases were correct enumerations, compared to 90.2% of the cases in May. We can see that the percentage of whole-person census imputations increases as the enumeration occurred further from Census Day.

For people in housing units in the VDC operation, results are shown by whether the housing unit was included in the NRFU operation. The percentages of erroneous enumerations due to duplication and whole-person census imputations were about the same for cases that had been previously worked (15.3% and 17.0% in both VDC and NRFU) versus those being worked for the first time (16.1% and 14.1% in VDC but not NRFU).

Table 19: Components of Census Coverage for Persons by  
Nonresponse Followup Field Operation Status

NRFU Field Operation	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)
			Duplication (%)	Other Reasons (%)	
U.S. Total	300,703 (0)	94.7 ( $<0.1$ )	2.8 ( $<0.1$ )	0.5 ( $<0.1$ )	2.0 (0)
In NRFU but not VDC					
April	1,717 (0)	93.1 (1.0)	3.7 (0.9)	0.6 (0.2)	2.6 (0)
May	59,057 (0)	90.2 (0.2)	4.0 (0.2)	0.8 ( $<0.1$ )	5.0 (0)
June	14,766 (0)	84.6 (0.5)	4.8 (0.5)	0.9 ( $<0.1$ )	9.6 (0)
July and August	211 (0)	74.8 (4.1)	6.8 (4.3)	1.2 (0.8)	17.3 (0)
Unknown Month	175 (0)	66.1 (1.3)	2.3 (1.2)	0.5 (0.2)	31.2 (0)
In VDC and in NRFU	2,393 (0)	65.7 (1.2)	15.3 (1.2)	2.0 (0.3)	17.0 (0)
In VDC but not NRFU	2,828 (0)	69.0 (2.4)	16.1 (2.4)	0.8 (0.2)	14.1 (0)
Not in NRFU or VDC but in NRFU Reinterview or Residual	349 (0)	76.6 (2.4)	8.1 (2.4)	0.3 ( $<0.1$ )	14.9 (0)
Not in any NRFU Universe	219,207 (0)	97.3 ( $<0.1$ )	2.1 ( $<0.1$ )	0.4 ( $<0.1$ )	0.3 (0)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

Table 20 shows the components of census coverage for the NRFU Residual field operation. For the person records in housing units in this field operation, 6.0% were erroneous enumerations due to duplication and 32.8% were whole-person census imputations. Of the 32.8% where whole-person census imputation was required, additional analysis showed that most were in count imputation housing units where the unit was determined to be occupied on Census Day but the population count needed to be imputed.

Table 20. Components of Census Coverage by Nonresponse Followup Residual

Operation	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)
			Duplication (%)	Other Reasons (%)	
U.S. Total	300,703 (0)	94.7 ( $<0.1$ )	2.8 ( $<0.1$ )	0.5 ( $<0.1$ )	2.0 (0)
NRFU Residual	1,057 (0)	60.5 (1.4)	6.0 (1.4)	0.7 (0.3)	32.8 (0)
Not in NRFU Residual but in another NRFU operation	80,440 (0)	88.0 (0.2)	4.9 (0.2)	0.8 ( $<0.1$ )	6.3 (0)
Not in any NRFU Universe	219,207 (0)	97.3 ( $<0.1$ )	2.1 ( $<0.1$ )	0.4 ( $<0.1$ )	0.3 (0)

Other NRFU operations include NRFU field operation, NRFU Reinterview, and NRFU Vacant Delete Check. Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

Table 21 shows the components of census coverage for the NRFU field operation cases by respondent type for the housing unit. Proxy response cases had 5.6% erroneous enumerations due to duplication and 23.1% whole-person census imputations. Household member respondent cases have 4.2% erroneous enumerations due to duplication and 1.6% whole-person census imputations.

Table 21. Components of Census Coverage by  
Nonresponse Followup Field Operation Respondent Type

Nonresponse Followup Field Operation Respondent Type	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)
			Duplication (%)	Other Reasons (%)	
U.S. Total	300,703 (0)	94.7 ( $<0.1$ )	2.8 ( $<0.1$ )	0.5 ( $<0.1$ )	2.0 (0)
Household Member	61,437 (0)	93.4 (0.2)	4.2 (0.2)	0.8 ( $<0.1$ )	1.6 (0)
Proxy	16,294 (0)	70.1 (0.3)	5.6 (0.3)	1.1 ( $<0.1$ )	23.1 (0)
Unknown Respondent Type	589 (0)	68.2 (1.1)	3.3 (1.1)	0.5 (0.1)	28.0 (0)
Not in NRFU Field Operation <sup>1</sup>	222,384 (0)	96.9 ( $<0.1$ )	2.2 ( $<0.1$ )	0.4 ( $<0.1$ )	0.5 (0)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

1. Includes persons in another NRFU operation and persons not in any NRFU universe. For more information, see Keller and Fox (2012).

### 8.3. Coverage Followup Operations

During the CFU operation, telephone interviews were conducted with respondents to determine if changes should have been made to their household roster as reported on their initial census return. The questions were designed to identify if people were missed or counted in error, and to collect missing demographic data. Govern et al. (2012) documents the official counts and provides more information on the CFU operation.

The CFU operation focused on situations in which there may have been erroneous enumerations or omissions in the 2010 Census. The CCM does not produce estimates of omissions for census operations. This section focuses on situations mostly designed to identify potential overcounting. The CCM analysis is based on whether the CFU interview was a completed or a non-completed case. The CCM does not evaluate if cases deleted by CFU were removed correctly from the census. Keller and Fox (2012) shows components of census coverage results for additional reasons for being part of the CFU operation.

Table 22 shows the components of census coverage for the person records in housing units identified as having discrepancies between the reported population count and the number of valid people listed on the questionnaire. A high discrepancy case occurs when the number of valid people is more than the population count. A low discrepancy case occurs when the number of valid people is less than the population count. When comparing completed to non-completed cases for high discrepancy cases, the percentage of erroneous enumerations due to duplication was 7.0 percentage points lower (4.7% versus 11.7%) and the percentage of erroneous enumerations due to other reasons was 1.0 percentage points lower (0.8% versus 1.8%). For the low discrepancy cases, there were no whole-person census imputations when the interview was completed, compared to 13.6% imputed for the non-completed cases.

Table 22. Components of Census Coverage by CFU Count Discrepancy

Count Discrepancy	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)
			Duplication (%)	Other Reasons (%)	
U.S. Total	300,703 (0)	94.7 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)
High Discrepancy Case					
Complete	2,347 (0)	94.4 (0.6)	4.7 (0.6)	0.8 (0.2)	0.0 (0)
Non-Complete	1,704 (0)	86.4 (1.1)	11.7 (1.0)	1.8 (0.4)	0.1 (0)
Low Discrepancy Case					
Complete	943 (0)	96.5 (0.9)	2.8 (0.8)	0.7 (0.3)	0.0 (0)
Non-Complete	1,039 (0)	80.1 (1.2)	4.4 (1.1)	1.9 (0.5)	13.6 (0)
Not a CFU Discrepancy Case	294,671 (0)	94.8 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

A second reason for cases going to CFU was based on matching of administrative records to the census responses by the Census Bureau Center for Administrative Records and Research Application. The matching identified housing units in which at least one person was matched between an administrative record and the census return and at least one person was identified on the administrative record but not on the census return. Table 23 shows the results for these cases by the interview completion status. Completed administrative records cases had 1.2% erroneous enumerations due to duplication and 0.3% erroneous enumerations due to other reasons.



Non-completed cases had 2.9% erroneous enumerations due to duplication and 1.3% erroneous enumerations due to others reasons.

Table 23. Components of Census Coverage by CFU Administrative Records Matching

Group	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)
			Duplication (%)	Other Reasons (%)	
U.S. Total	300,703 (0)	94.7 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)
Administrative Records Matching					
Complete	1,389 (0)	98.5 (0.5)	1.2 (0.5)	0.3 (0.1)	0.0 (0)
Non-Complete	916 (0)	95.4 (1.0)	2.9 (0.9)	1.3 (0.4)	0.5 (0)
Not a CFU Administrative Record Case	298,398 (0)	94.6 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

A third reason cases went to CFU was the overcount coverage probe. For each person on the form, the respondent could indicate if the person sometimes stays or lives in college housing, military, jail, nursing home, or other places. Positive responses for a person or several people in a housing unit triggered the CFU interview for the housing unit. Table 24 shows the results for select overcount question probes by interview outcome. When the overcount reason was college, CFU completed interviews had 3.4% erroneous enumerations due to duplication and 0.8% erroneous enumerations due to other reasons. For non-completed cases, the estimates were 16.2% and 3.5%, respectively.

When several people in a housing unit indicated that they may have lived somewhere else, completed interview cases had a 6.2% estimate of erroneous enumerations due to duplication. Non-completed cases had a 13.8% estimate. When the other place was a jail, completed cases had 6.5% erroneous enumerations due to duplication and 4.1% erroneous enumerations due to other reasons. Non-completed cases for this reason had estimates of 2.4% and 2.6, respectively. An explanation for this unexpected result is a processing error that affected the roster change rate for those in the overcount reason “in jail or prison,” as documented in Govern et al. (2012).

Table 24. Components of Census Coverage by Household Status of the CFU Overcount Question

Overcount Question Reason	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)
			Duplication (%)	Other Reasons (%)	
U.S. Total	300,703 (0)	94.7 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)
College					
Complete	2,034 (0)	95.8 (0.5)	3.4 (0.5)	0.8 (0.2)	0.0 (0)
Non-Complete	1,224 (0)	80.2 (1.2)	16.2 (1.1)	3.5 (0.6)	0.1 (0)
Military					
Complete	913 (0)	96.9 (0.6)	1.2 (0.5)	1.8 (0.4)	0.0 (0)
Non-Complete	572 (0)	90.6 (1.6)	3.5 (1.2)	5.8 (1.0)	0.1 (0)
Jail					
Complete	167 (0)	89.4 (1.9)	6.5 (1.7)	4.1 (1.3)	0.0 (0)
Non-Complete	142 (0)	94.8 (1.6)	2.4 (1.2)	2.6 (1.1)	0.2 (0)
Nursing Home					
Complete	75 (0)	90.7 (3.3)	9.1 (3.3)	0.1 (<0.1)	0.0 (0)
Non-Complete	94 (0)	78.0 (4.6)	16.9 (3.9)	4.7 (2.7)	0.4 (0)
Multiple Reasons for Person					
Complete	283 (0)	92.2 (1.5)	7.4 (1.6)	0.4 (0.3)	0.0 (0)
Non-Complete	204 (0)	89.0 (2.3)	9.2 (2.3)	1.5 (0.6)	0.3 (0)
Multiple People in Housing Unit Case					
Complete	1,201 (0)	92.0 (1.1)	6.2 (1.1)	1.8 (0.4)	0.0 (0)
Non-Complete	827 (0)	83.5 (1.6)	13.8 (1.5)	2.7 (0.6)	0.0 (0)
Not a CFU Overcount Case	292,967 (0)	94.8 (<0.1)	2.7 (<0.1)	0.5 (<0.1)	2.0 (0)

Census count is all of the people in the housing unit and excludes persons in group quarters and persons in Remote Alaska. Standard errors are in parentheses below the estimate.

Table 25 shows the component results for large household cases in the CFU operation. These are cases for which the population count provided by the respondent was equal to or greater than the number of spaces allotted to the form to fully enumerate the household. While the primary goal for conducting the CFU interview for these cases was to obtain the remaining demographic characteristics for all the people in the unit, the interview could result in determining some of the persons were erroneous enumerations and removing them. The estimates for large household completed cases were 3.0% erroneous enumerations due to duplication and 0.5% erroneous due to other reasons. For the non-completed large household cases, the estimates were 3.1% and 0.6% respectively. These results were not significantly different.

Table 25. Components of Census Coverage by CFU Large Household Status

Large Household Status	Census Count (Thousands)	Correct Enumerations (%)	Erroneous Enumerations		Whole-Person Census Imputations (%)
			Duplication (%)	Other Reasons (%)	
U.S. Total	300,703 (0)	94.7 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.0 (0)
Large Household					
Complete	6,654 (0)	96.5 (0.4)	3.0 (0.4)	0.5 (<0.1)	0.0 (0)
Non-Complete	3,788 (0)	96.1 (0.7)	3.1 (0.6)	0.6 (0.1)	0.1 (0)
Possible Large Household					
Complete	118 (0)	93.3 (5.3)	6.6 (5.4)	0.1 (0.1)	0.0 (0)
Non-Complete	141 (0)	86.8 (5.7)	12.5 (5.2)	0.8 (0.7)	0.0 (0)
Not a CFU Large Household Case	290,002 (0)	94.6 (<0.1)	2.8 (<0.1)	0.5 (<0.1)	2.1 (0)

Standard errors are in parentheses below the estimate.

The 2010 Census count excludes persons in group quarters and persons in Remote Alaska.

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# **EXHIBIT “C”**

## **FINAL REPORT**

### **National Advisory Committee on Racial, Ethnic, and Other Populations**

#### **Administrative Records, Internet, and Hard to Count Population Working Group**

**SUMMARY:** The purpose of the Administrative Records, Internet and Hard to Count (HTC) Population Working Group was to explore how plans for the 2020 Census may impact hard-to-count populations. Specifically, the working group focused on how the use of administrative records and third party data as well the utilization of the internet will impact the enumeration of these groups. The HTC Working Group reviewed interim findings from 2020 research and testing projects using administrative records and third party data and findings from research and testing using the internet as a mode for data collection. After reviewing these documents and presentations from the Census Bureau, the HTC Working Group sought additional information from the Pew Research Center regarding patterns of inequality in internet access and mobile phone usage. The working group then discussed the problems in reaching hard-to-count groups, and potential solutions to better enumerate the hard-to-count population through administrative records and the internet. Finally, the working group came up with recommendations toward this end, including identifying topics for further research.

This report contains the following sections:

1. Issue
2. Process
3. Key Findings
4. Recommendations

### **1. ISSUE**

The Census Bureau is devising strategies to reduce the cost of the design and implementation of the 2020 Census while at the same time maintaining high quality results. A substantial additional cost for the Census Bureau involves households that do not respond to the mail-out questionnaire and therefore require Nonresponse Follow-up (NRFU) operations, including enumerators who knock on doors often multiple times to get a response. In order to reduce this excess cost, the Census Bureau is investigating the use of administrative records and third party data. As defined in the “Administrative Records and Third Party Data Use in the 2020 Census Working Group Report,” administrative data “refers to any information collected by federal or state agencies for the purpose of administering programs or providing services” and third party data refers to, “private, or commercial, data” that is “collected by third parties, which were acquired by the Census Bureau.” By matching households with such records, the Census Bureau can better exclude vacant households and determine which households require enumeration and NRFU outreach. Such data can also be used to improve address ranges and provide household contact information, to target specific demographics for sampling, and to assist in editing/imputing household information where data is missing.

The first task of the HTC Working Group was to review how the use of this administrative and third party data could impact groups that have been considered hard-to-count in the traditional paper-based mail-in questionnaire. Groups that have typically been harder to reach and/or enumerate include:

- racial and ethnic minorities
- persons who do not speak English fluently
- lower income persons
- homeless persons
- undocumented immigrants
- young mobile persons
- children
- persons who are angry at and/or distrust the government
- LGBTQ persons

This is not an exhaustive list, and hard-to-count persons exist across and within each category above, but these represent the groups that have proven difficult to fully count. Thus, our task was to evaluate how the proposed reliance on administrative records and third party data could impact the enumeration of these groups.

In addition to working to improve Census enumeration with these data sources, the Census Bureau is also researching how to enhance response by using internet modes. The HTC Working Group was charged with evaluating how hard-to-count groups such as those listed above might be affected by reliance on internet (including mobile phone technology) to collect household data via the 2020 Census.

## **2. PROCESS**

The HTC Working Group had 14 conference calls between January 2015 and April 2016. We also met in person during a lunch and/or pre-NAC conference meetings in Spring 2015, Fall 2015, and Spring 2016. Our process during these calls and meetings involved three steps:

- 1) Information Gathering- We heard presentations from Census Bureau staff who reported on issues and testing of administrative records matching, use of third party data, and testing of internet modes of data collection. We sought out more information on internet inequalities from the Pew Research Center.
- 2) Summarizing the Data- Working Group members summarized how specific hard-to-count groups may be affected by reliance on these data sources and internet use. To do this we used a google document “matrix” with boxes for each group that was then filled out by members.



- 3) Devising Recommendations – Working Group members worked via a conference call and in person at the May 2016 meeting to come up with recommendations.

Below we have listed our working group members and a table that includes the details of our calls and meetings.

### **Working Group Members:**

Working Group Convener		
Dowling	Julie	Associate Professor, Department of Latina/Latino Studies University of Illinois, Urbana Champaign
NAC Working Group Members		
Akee	Randall	Assistant Professor, Department of Public Policy University of California, Los Angeles
Amaya	Gilberto	Specialist, International Development
Fitisemanu	Jacob	Outreach coordinator for the Utah Department of Health Office of Health Disparities
Gore	Carol	Vice Chair of NAC President and Chief Executive Officer, Cook Inlet Housing Authority (CIHA)
Harris	Kathleen	Professor of Sociology and faculty fellow at the Carolina Population Center University of North Carolina
Katague	Ditas	Chair of NAC Chief of Staff to California Public Utilities Commissioner
Marlow	Yolande	Executive director of the Supreme Court Committee on Minority Concerns
Maury	Meghan	Federal policy counsel for the National Gay and Lesbian Task Force in Washington, DC
Medrano	Pauline	Former Mayor Pro Tem for the City of Dallas, Texas
Michaels	Stuart	Senior research scientist at the Academic Research Centers at NORC
Moua	Mee	President and Executive Director, Asian Americans Advancing Justice – AAJC
Rodriguez Lonebear	Desi	Member of Northern Cheyenne Tribe
Taulii	Maile	Assistant Professor, Department of Public Health Sciences University of Hawaii, Honolulu
Census Staff and Subject Matter Experts		
Bates	Nancy	Senior Researcher for Survey Methodology
Bentley	Michael	Chief, Census Experiments Branch
Chapin	MaryAnn	Program Manager for Nonresponse and Coverage Operations
Horwitz	Rachel	Census Experiments Branch
Hunter Childs	Jennifer	Team lead for Privacy and Confidentiality Center for Survey Measurement
Ingold	Jane	Team Lead for Optimizing Self-Response
Mule	Tom	Team lead for Administrative Records Modeling
Rastogi Porter	Sonya	Assistant Center Chief for Research, Center for Administrative Records Research & Applications

**Details on Working Groups Calls, Meetings, and Documents/Sources:**

	<b>Description</b>	<b>Activities and Notes</b>
1/30/15	First Conference Call	Discussed the scope of work, administrative issues, FACA guidelines, and schedule with the working group.
1/30/15	Materials distributed following first call	Working Group members were sent links to the prior final reports submitted by the Administrative Records and Third Party Data (ARTPD) working group and other working groups on Census website. The power point presentation by the ARTPD was also sent to the group.
2/4/15	Materials distributed for February call	The following documents were sent to working group: "Defining Hard-To-Survey Populations" by Roger Tourandau; "Using a Geographic Segmentation to Understand, Predict, and Plan for Census and Survey Mail Nonresponse" by Nancy Bates and Mary Mulry; "The US Census Bureau Mail Return Rate Challenge: Crowdsourcing to Develop a Hard-to Count Score" by Chandra Erdman and Nancy Bates; "A Brief Review of Coverage, Ethnographic Studies, and Changing Census Bureau Operations since the 1970s" by Jennifer Hunter Childs
2/26/15	Conference call-- Who are traditionally the Hard to Count?  Census Presenters: Nancy Bates and Jennifer Hunter Childs	Both Nancy Bates and Jennifer Hunter Childs presented detailed information on the demographics of the hard to count.
3/19/15	Conference call-- 2010 Census Operations to Capture the Hard to Count, 2020 Research and Testing Operational Plans  Census Presenters: Robin Pennington with Sarah Heimel, and Elizabeth Poehler	Robin Pennington presented on Non-Response Follow-up (NURFU) operations from 2010.
3/26/15	Lunch Meeting at NAC	A lunchtime working group meeting was held at the NAC. We went over the basics of the working group and several new members joined.

4/13/15	Conference call-- We had a call to orient all the new members.	Since new members joined after the NAC meeting, we had Nancy Bates and Jennifer Hunter Childs present on the traditionally hard to count population again. They gave the same presentation they gave during our February monthly call.
4/28/16	Conference Call-- Coverage and Quality of Administrative Records related to the Hard to Count  Census presenters: Sonya Rastogi Porter and Brian Clark	Both Brian Clark and Sonya Rastogi Porter presented on the quality and coverage of administrative records.
5/28/15	Conference Call-- How the Census Bureau is researching the use of administrative records and third-party data during the NRFU Operation in the 2015 Census Test.  Census Presenter: Tom Mule	Tom Mule presented on NRFU Operation in the 2015 Census Test with a focus on how administrative records are being used when addresses do not self-respond to the initial census mailing attempts.
6/22/15	Conference Call-- Internet Test Plans  Presenters: Rachel Horwitz and Michael Bentley	Rachel Horwitz and Michael Bentley covered information about the Internet data collection mode and respondents that use mobile devices to answer survey questions.
7/28/15	Conference Call-- Follow-up call on NRFU Operation in the 2015 Census Test  Census Presenter: Tom Mule	Tom Mule presented additional information on the NRFU Operations in 2015 Census Test.
8/20/15	Conference Call-- Working Group Members discussion on next steps	This call focused on gaps in information and possible additional speakers. We decided on getting more information on internet inequalities.

9/18/15	Materials were distributed for the call on internet inequalities	<p>The following links to documents were sent to the working group:</p> <p>“America’s Internet Access 2000-2015,” Pew Research Center, 2015:  <a href="http://www.pewinternet.org/2015/06/26/americans-internet-access-2000-2015/">http://www.pewinternet.org/2015/06/26/americans-internet-access-2000-2015/</a></p> <p>“Mapping the Digital Divide” — Council of Economic Advisors Issues Brief, July 2015:  <a href="https://www.whitehouse.gov/sites/default/files/wh_digital_divide_issue_brief.pdf">https://www.whitehouse.gov/sites/default/files/wh_digital_divide_issue_brief.pdf</a></p> <p>“15% of Americans don’t use the internet. Who are they?” July 2015:  <a href="http://www.pewresearch.org/fact-tank/2015/07/28/15-of-americans-dont-use-the-internet-who-are-they/">http://www.pewresearch.org/fact-tank/2015/07/28/15-of-americans-dont-use-the-internet-who-are-they/</a></p> <p>“Who is not online and why?” 2013: <a href="http://www.pewinternet.org/2013/09/25/whos-not-online-and-why/">http://www.pewinternet.org/2013/09/25/whos-not-online-and-why/</a></p> <p>“Exploring the Digital Nation: Embracing the Mobile Internet” — Report prepared by US Department Of Commerce National Telecommunications and Information Administration, October 2014:  <a href="http://www.ntia.doc.gov/files/ntia/publications/exploring_the_digital_nation_embracing_the_mobile_internet_10162014.pdf">http://www.ntia.doc.gov/files/ntia/publications/exploring_the_digital_nation_embracing_the_mobile_internet_10162014.pdf</a></p>
9/22/15	Conference Call-- Internet Inequalities  Presenter: Lee Rainie, Pew Research Center	Outside expert Lee Rainie from Pew Research Center presented to us about the digital divide and internet/phone inequalities.
10/7/15	Meeting the day before the NAC	Census and NAC working group members met Wednesday afternoon before the start of NAC to finalize the presentation. We also developed our plan to create a "matrix" that describes issues and proposed solutions related to each population group.
10/27/15	Conference Call-- Follow-up on matrix	We discussed dividing up the work, with members taking on different sections of the matrix to complete.
12/3/15	Conference Call-- Additional follow-up on matrix	We went over gaps in the matrix and set a date for completion.
2/2/16	Conference Call-- Reviewed Timeline	We reviewed our timeline for completion and planned our next call.
4/7/16	Conference Call-- Brainstorming Session	We had a brainstorming session on solutions for administrative records and internet.
5/21/16	Materials distributed for NAC pre-meeting of the working group	The presentation with recommendations included and draft of the report were circulated to working group.
5/25/16	Meeting the day before the NAC	Working group members met to go over the report, presentation, and recommendations the day before the NAC meeting. We worked on final revisions for the presentation to the NAC.
5/27/16	NAC VOTE	NAC voted on all recommendations, making a few revisions before voting to approve all recommendations as they are currently listed in the report.

### 3. KEY FINDINGS

From the presentations from the Census Bureau and documents shared with us, we learned that it is more difficult to match administrative records with persons who are:

- children
- homeless
- lower income
- lower education
- not English-speaking (immigrants)
- do not have a social security number (undocumented immigrants)
- racial/ethnic minorities - all were lower than whites, “Some Other Race” is the lowest

From the presentations by the Census Bureau and the Pew Research Center, we learned that persons are less likely to have internet access at home and are less likely to have a smart phone if they are:

- homeless
- lower income
- lower education
- older
- live in rural areas
- persons with disabilities
- primarily Spanish-speaking
- Latino, Black, or American Indian/Alaska Native (note: Asians had highest percent usage above whites, and Native Hawaiian and Pacific Islander not included as a category in data we examined.)

***\*\*Given what we have learned, it appears that vulnerable hard-to-count populations will continue to be hard to enumerate even with advances in uses of internet technology and administrative data matching. \*\****

Below we have detailed some specific information on concerns and issues pertaining to each group that we discussed. **This list and the detail provided for each group are certainly not exhaustive.** Indeed, a full-length report could be written on each group individually. The information here is just to provide a brief overview of the basic related concerns regarding these populations that we discussed. Here, we cover just the basics of potential barriers to being counted by the Census and being matched in administrative records, as well as the internet access that each population has as this may impact reliance on internet modes of data collection.

### **AFRICAN AMERICANS**

African Americans have a lengthy history of discrimination and unequal treatment in this country and this can lead to distrust of the government and hence apprehension about responding to federal questionnaires. Lower income African Americans in economically disadvantaged areas may be particularly vulnerable to an undercount. Enumerators may not always have the cultural sensitivity needed to gain the trust of these individuals and may themselves be fearful of low-income African American neighborhoods.

Also, a substantial proportion of African Americans are housed in juvenile and adult correctional facilities and county jails. Populations in jails and juvenile institutions tend to be fluid. African American homeless juveniles and adults also pose challenges to enumeration.

African Americans and other racial/ethnic minorities were more difficult to match to administrative records. And due to lower than average income, African Americans were also less likely to have internet access at home.

### **LATINOS**

Latinos also have faced significant discrimination in the US that may lead to distrust and anxiety about filling out their census forms. Moreover, a significant proportion of Latinos are immigrants and therefore more likely to be Spanish-speaking. Undocumented immigrants may also fear identifying themselves on the census due to fears of deportation. Also for both US-born and immigrant Latinos, lower average income means they are less likely to have smart phone or internet at home.

Importantly, the "Other race" group (which is 97% Latino) was least likely to be matched in administrative records data. Also immigrants and those who are undocumented (lacking a social security number) are hard to match. This means Latinos at greater risk for being missed when administrative records are used.

### **ASIANS**

Like Latinos, a large percentage of Asians are foreign-born (60%) which means that Asians may also face similar issues of fears of the government and language barriers (3/4 speak a language other than English at home; 35% of population is LEP). Some Asian immigrants are from countries that do not have a census system or have used such a system to harm community members; this may heighten distrust. They are also likely to live in "unconventional" households (with extended family, etc.), which may pose challenges to enumeration.

Administrative records data can be limited for various Asian groups with little detailed national origin data. Many datasets report out Asian Americans as part of an "Other" category (i.e., cannot distinguish who actually is Asian). Some administrative records might have collected "Asian" responses even if they report them out as "other," detailed data is not included. Third party data is even worse for Asian Americans.

Aggregate Asian data shows that Asian Americans have decent access to broadband internet access. But specific Asian national origin groups have different access to broadband. It is likely that certain segments will have a harder time accessing the survey via the internet. This is particularly true for the older segment of our population, who are likely to have language barrier issues coupled with technology issues.

#### **AMERICAN INDIANS, ALASKA NATIVES**

American Indians have also faced significant discrimination and thus may be more likely to distrust the government. Poor maps as well as individuals living in unconventional structures (illegal conversion of apartments; seemingly abandoned buildings) may pose challenges to enumeration. There are very different issues in rural as compared to urban populations for these groups. In rural areas, issues are similar to other small, remote locations in general. In urban areas, issues are similar to other urban poor. Lack of English proficiency for some groups may also be an issue in reaching these communities

AIAN groups were particularly difficult to match to administrative records. There are possibilities for administrative record matching with the Indian Health Service and other administrative data such as IRS records, social security, etc. But, non-tax filers will not be in IRS data.

Overall, according to Census data, 58.2 % of American Indians use the internet which is low compared to the average White household. Some remote locations have little internet access. This is similar to issues for rural areas in general. Cell phone coverage may be equally poor in some areas as well.

#### **NATIVE HAWAIIANS, OTHER PACIFIC ISLANDERS**

Native Hawaiians and Other Pacific Islanders may be difficult to enumerate for a number of reasons including mistrust of the US government, negative perceptions of such “paperwork/forms,” and inadequate explanations of why the census is necessary and what will be done with the data. The NHOPI community also includes many with limited English proficiency, multi-family and multi-generational households. Some groups may be mobile/transient populations, and legal status issues exist for some.

Currently, 87% have a computer and 75% have internet with broadband subscription. There is also broad use of mobile devices over desktop/laptop computers in these populations.

#### **LOW-INCOME**

Low income persons had a 64% average Census 2000 return rate. There are many issues that may be at play in this lower response, including housing instability. Administrative records data matching for this group may face potential gaps for individuals who do not

file taxes or have W-2s. Other databases may be needed such as Social Security disability.

Only, 78% of households with less than \$30,000 use the internet. This is about 10% below that of the next highest group \$30,000-\$50,000 and almost 20% lower than the next group in the \$50,000-70,000 group. There has been an increase in use over the 2000s for the lowest income group, however, it still trails behind the other higher income groups by a large amount at all points in time.

### **HOMELESS**

Persons without stable housing pose a particular challenge for enumeration. This may be amplified as the Census Bureau incorporates the use of administrative records and internet as homeless individuals are less represented on both fronts. Homeless people are unlikely to be represented in most administrative records because they are not regularly interacting with systems like health care, tax returns, etc.

Many homeless youth are provided with cell phones through city programs (but accessing data is sometimes problematic); many homeless people access Internet through local public libraries and community centers.

Access to internet is spotty for the homeless, and when access is available, many homeless people have other priorities such as accessing employment, checking email, etc. In other words, it is not that this population completely lacks access, it is that they are not going to waste their short time on the Internet to take the Census. Incentive programs could be initiated to encourage participation.

### **UNDOCUMENTED**

As detailed the descriptions of issues facing many of the racial/ethnic groups above, legal status is a key issue in many communities with larger immigrant populations. Not only are these persons difficult to match via administrative records due to lack of social security numbers, but they are also fearful of filling out their census forms because they are afraid detention and deportation if located by the government. They are also more likely to be lower income, and therefore have less internet resources. The lower access to matching records, lower internet access at home, and fear of filling out the census makes this group very vulnerable to be undercounted. This could disproportionately impact counts of the Latino and Asian populations in particular.

### **“CYNICAL FIFTH”/ANGRY WITH GOVERNMENT**

The "cynical fifth" is a descriptor of a segment of the U.S. population that represents almost 20% of the population. This descriptor was developed as part of a study carried out by the Census Bureau in 2009 based on a survey of attitudes and beliefs toward the Census in preparation for media outreach campaigns for the 2010 Census. This group



distinguished itself by a relatively high level of knowledge and familiarity with the Census coupled with a high level of skepticism and mistrust about the Census.

Interestingly they were found to be demographically similar to the population as a whole, that is, they could be found in every demographic group. This group is defined more by their attitudes than their social characteristics. They are likely to be hard to count because they are likely to be resistant to participation in the Census. They are also likely difficult to identify via administrative records. Our committee's interest in this group grew out of a discussion of certain more classically hard to count groups such as ethnic groups in Hawaii and other American Indian groups who may be alienated and skeptical about governmental institutions. Many Latinos, for example, are becoming increasingly disillusioned with US immigration policy and the high level of detentions and deportations that disproportionately impact their communities leading many to distrust the government. However, we also recognized that there may be other segments of the population that are members of majority racial groups who may also be resistant and opposed to the government.

Given the apparent distribution of the "cynical fifth" throughout the population defined in traditional social and demographic measures, it is hard to imagine administrative records that could be used to target and reach them. Moreover, we do not have data on their specific internet access or usage.

### **LGBTQ**

Some groups are difficult to enumerate because the survey itself does not ask questions that clearly define them. Such is the case with the LGBTQ community, the current census does not ask for information on one's sexual orientation or status as transgender or genderqueer. Researchers utilizing census data to enumerate LGBTQ households must rely on reporting "same-sex partner" households, since the only data gathered about orientation is the gender of one's partner.

In terms of administrative records, sexual orientation and gender identity/expression (SOGIE) data is captured in few federal administrative records systems. However, SOGIE questions are increasingly being added into medical records. From the standpoint of determining household composition, best access might be: IRS, SNAP, TANF, where we know there is an overrepresentation of LGBTQ people. Even same-sex relationship data is rare in administrative records. If administrative records are used to approximate households, it is VERY likely that same-sex couples will not be counted as in a relationship because administrative records do not record that information.

With regard to internet, some studies show high levels of access, but use of different websites than non-LGBTQ community. Internet use by low-income LGBTQ people is often through LGBT community centers.

### **YOUNG AND MOBILE**

Young and mobile individuals have been traditionally difficult to enumerate due to frequent moves and/or housing instability. Young persons who have not established an independent household residence may be harder to access via administrative records. However, young persons have higher than average rates of internet and smart phone usage leading to greater likelihood they could be reached with internet modes of data collection. This, of course, varies by socio-economic status and race/ethnicity, as lower income and/or racial minority young and mobile persons may still pose challenges to enumerate as they may face barriers in access.

### **GROUP QUARTERS**

According to the Census, “Group Quarters (GQ) are places where people live or stay, in a group living arrangement, which are owned or managed by an entity or organization providing housing and/or services for the residents. This is not a typical household-type living arrangement. These services may include custodial or medical care as well as other types of assistance, and residency is commonly restricted to those receiving these services.” Some examples of group quarters living situations include correctional facilities, nursing homes, military housing, and college residence halls. Since the Census relies on household data, enumerating people in group quarters may be challenging. This is particularly the case if persons may be counted in two locations, such as a college student who lives at school, but may also be listed as a household member at his/her parents’ home.

Administrative records may be difficult to match for persons in group living situations where household members are typically not related to each other. With regard to internet access, access for some group living situations may be quite high (colleges) but in others may be very limited.

In concluding our findings section, based on the information we gathering and our discussions, there are many concerns about the ability to reach hard to count groups with the use of administrative records and internet data collection modes. We have developed recommendations for solutions and have listed these in the next section, as they were voted on and approved in the May 2016 NAC meeting.

#### 4. RECOMMENDATIONS VOTED ON AND APPROVED BY NAC

The following recommendation (in bold) were voted on and approved on May 27, 2016.

- 1) **Further Research: There are lower administrative records matches for many of the most vulnerable groups as detailed in this report, including all racial/ethnic minority groups. Our first recommendation is an affirmation of the need for more research on better ways to enhance coverage for these groups.**

*WG Explanation: As was detailed by the previous working group on Administrative Records and Third Party data, we find these records work well in matching records for the White and higher income populations but racial/ethnic minorities, lower income persons, and other HTC populations are likely to be missed. It is imperative that more research be done to work to remedy this.*

- 2) **Exploring Other Datasets: There are a number of datasets that might prove useful in collecting data for HTC groups. We recommend that the Census Bureau work with local community groups and local organizations to identify these datasets. We have also identified a number of possible sources listed below.**

- Tribal data, including tribal data from local housing organizations
- Many people experiencing homelessness are recorded in the Homeless Management Information System (HMIS); young people are similarly recorded in the Runaway and Homeless Youth Management Information System (RHYMIS).
- There are limited records wherein same-sex relationships are being reported (health care records, for example). These may be accessed to locate data for same-sex couple households.
- Investigate state department of labor records for income and other demographic administrative data
- Investigate use of per capita payments to identify records for lower income and other HTC groups
- Investigate administrative records including public utility data for low-income households, and low income utility programs (i.e. Lifeline, low income energy assistance programs)
- Investigate the use of Department of Education data

- 3) Explore How Other Census Datasets Can Better Count HTC Groups:** Include individuals in different kinds of shelters and other non-household data in the American Community Survey (ACS). Without this data, some HTC populations may be missed and funding that is conditional on ACS data may not get to the communities that need it the most.
- 4) Reaffirmation of Need to Follow “Decision Tree” Outlined by Administrative Records and Third Party Data Working Group:** As the Census Bureau continues exploration of use of these data sources, we recommend that the Census meticulously examine the sources of these data, how they were obtained, possible consent and privacy concerns, and the overall quality of the data.

*WG Explanation: As was detailed by the previous working group on Administrative Records and Third Party data, we support the use of the proposed “decision tree” that incorporates an analysis of whether the data source’s “reputation and data stewardship practices align with those of the Census Bureau.” The Census should weigh the costs and benefits of each data source, including attention to how data was collected, quality, coverage, and issues related to privacy and public trust.*

- 5) Internet Outreach Solutions:** Given the inequalities in internet access, the HTC Working Group recommends attention be given to creative ways to reach HTC groups by providing them with internet access to complete the online form. We have identified a number of suggestions towards this end:
- Using mobile vans with internet
  - Using local community centers with internet
  - Making the Census page the home page at libraries and community centers
  - Incentive programs where time on a library or community center computer is extended (for 15 minutes, for example) if you fill out the Census
  - Wifi hotspots with power stations for people to charge their phone while taking the Census on their phone
  - Develop relationships with David Bohnet cyber centers nationwide to increase reaching LGBTQ and homeless. This report has more information about internet access through centers:  
<https://www.lgbtmap.org/file/2014-lgbt-community-center-survey-report-cybercenter-program.pdf>

- Using Facebook to reach populations
  - Developing an application that can be downloaded to a phone
- 6) **Offering Additional Language Options:** In order to reach HTC groups who have high numbers of immigrants and persons with limited English, we recommend that the internet interfaces include as many languages as possible. Online forms could potentially include many more languages than the printed version.
- 7) **Prioritizing Language Minority Communities with a High Incidence of Limited English Proficiency:** When choosing languages for translation, we recommend the Census Bureau consider not just the number of speakers, but smaller language communities that can only respond in their own language.
- 8) **Targeting HTC Communities Through Mapping:** For example, in order to best target HTC groups with limited English, we recommend the Census Bureau provide data mapping by language so that areas with LEP individuals are highlighted and can be specifically targeted.
- 9) **Community Partnership and Outreach Solutions:** In order to reach these HTC groups, we recommend that the effort to reach these groups be the priority for of the partnership and communications contract. Hiring strategies should prioritize local community contacts and stakeholders, specifically neighborhood-level advocates.
- 10) **Continued Need For Non-Internet Modes:** The lack of administrative records coverage and lower internet access also necessitates that mail-out surveys and enumerators are still highly important for these group. We recommend continued commitment to traditional paper questionnaire modes, and aggressive outreach to continue to target HTC groups using the resources saved through the reduction in costs from increases in internet response.
- 11) **NAC Input:** We recommend that the NAC have a continuing advisory role in working with Census to ensure HTC groups receive critical attention as the Census moves forward with plans for incorporating internet modes and the use of administrative records and third party data.

# **EXHIBIT “D”**

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

- - - - - x  
STATE OF NEW YORK, et al., :  
Plaintiffs, :  
vs. : Civil Action No.  
UNITED STATES DEPARTMENT OF : 1:18-cv-2921-JMF  
COMMERCE, et al., :  
Defendants. : Volume II

- - - - - x  
CONTINUED VIDEOTAPED 30(b)(6) DEPOSITION OF:  
UNITED STATES CENSUS BUREAU GIVEN BY JOHN M. ABOWD  
DATE: Friday, October 5, 2018  
TIME: 9:05 a.m.  
LOCATION: Arnold & Porter Kaye Scholer  
601 Massachusetts Avenue, N.W.  
Washington, D.C.  
REPORTED BY: Denise M. Brunet, RPR  
Reporter/Notary  
Veritext Legal Solutions  
1250 Eye Street, N.W., Suite 350  
Washington, D.C. 20005

A P P E A R A N C E S

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14  
15 ALSO PRESENT: Nhat Pham, Videographer

## C O N T E N T S

## EXAMINATION BY: PAGE:

Mr. Ho 349

Ms. Fidler 436

## ABOWD DEPOSITION EXHIBITS: PAGE:

24 - Bates COM\_DIS00009833 - 9909 349

25 - Bates COM\_DIS0012757 - 762 349

26 - DSSD 2010 Census Coverage Measurement  
Memorandum Series #2010-G-01 39927 - Proposed Content Test on Citizenship  
Question 425

28 - Bates COM\_DIS00010669 - 684 436

29 - Bates COM\_DIS0013025 - 55 436

(\*Exhibits attached to the transcript.)

1 P R O C E E D I N G S

2 (Abowd Deposition Exhibit Numbers 24 and  
3 25 were marked for identification.)

4 THE VIDEOGRAPHER: We're now on the  
5 record at 9:05 on October 5th, 2018. This is the  
6 continuation of the 30(b)(6) deposition of the  
7 Census Bureau, given by John Abowd, taken in the  
8 matter of the New York Immigration Coalition, et  
9 al., v. United States Department of Commerce, et  
10 al.

11 Our court reporter is Denise Brunet,  
12 camera operator is Nhat Pham, both on behalf of  
13 Veritext.

14 Attorneys present and attending remotely  
15 will be noted on the stenographic record. Will  
16 the court reporter please swear in the witness.  
17 WHEREUPON,

18 JOHN M. ABOWD,  
19 called as a witness, and having been sworn by the  
20 notary public, was examined and testified as  
21 follows:

22 EXAMINATION BY COUNSEL FOR



1 NEW YORK IMMIGRATION COALITION

2 BY MR. HO:

3 Q Good morning, Dr. Abowd.

4 A Good morning.

5 Q You understand that this is a  
6 continuation of your 30(b)(6) deposition which  
7 began on August 29th, 2018, correct?

8 A Yes, I do.

9 Q And do you understand that you remain  
10 under oath today to tell the truth?

11 A Yes, I do.

12 Q Is there any reason that you can't tell  
13 the truth today?

14 A No, there is not.

15 Q I would like to remind you not to jump in  
16 and answer questions before I've finished asking a  
17 question so that the court reporter can get  
18 everything down. Is that okay?

19 A Yes, sir.

20 Q In the interest of time, I'd like to  
21 request that if it's possible, you try to answer  
22 my questions, where appropriate, with a yes or a

1 It does not mean net undercount.

2 THE REPORTER: Could you please repeat  
3 your answer.

4 THE WITNESS: Accurate enumeration in  
5 this sentence means enumeration errors and  
6 whole-person census imputations. It does not mean  
7 net undercount.

8 BY MR. HO:

9 Q Now, if you send an in-person enumerator  
10 to a household that doesn't self-respond and that  
11 doesn't result in a response, one way that you  
12 could -- another way you could have of enumerating  
13 that household is through a proxy response, which  
14 means trying to obtain a response from someone who  
15 is not a member of that household about that  
16 household, correct?

17 A Yes.

18 Q And the Census Bureau agrees that proxy  
19 enumeration generally results in lower quality  
20 enumeration data than self-responses, correct?

21 A Yes.

22 Q And the Census Bureau agrees that a proxy

1 response is more likely to result in the omission  
2 of a household member than a self-response,  
3 correct?

4 A I haven't looked at the table recently,  
5 but I believe that's correct, yes.

6 Q Let's go to the white paper again. And I  
7 want to look at page 12, Bates number  
8 COM\_DIS09844, figure 3.

9 A Figure 3, did you say?

10 Q I believe so. On page 12?

11 A Okay. I thought I heard 4.

12 Q Okay. Figure 3 depicts unit non-response  
13 to the ACS from 2010 through 2016 comparing census  
14 tracts with the lowest decile of housing units  
15 containing a non-citizen to the census tracts in  
16 the highest decile of housing units containing a  
17 non-citizen, correct?

18 A Correct.

19 Q And for each year of ACS depicted here,  
20 census tracts in the highest decile of housing  
21 units containing a non-citizen have a lower  
22 response rate to the ACS than do census tracts in

1 the same exhibit.

2 Q Okay. Well, given what we've talked  
3 about, that unit non-response is lower in census  
4 tracts that have higher percentages of  
5 non-citizens and that ACS NRFU is less successful  
6 in census tracts that have higher percentages of  
7 households including a non-citizen, does the  
8 Census Bureau expect that people who live in  
9 census tracts with higher percentages of  
10 households with a non-citizen would also be less  
11 likely to provide proxy responses to the census  
12 than people who live in other areas?

13 A Accepting your premise about my testimony  
14 from before, the Census Bureau believes that that  
15 is likely, yes.

16 Q Let's look at page 43 of the white paper,  
17 Bates number COM\_DIS09875. Let's look at the last  
18 full paragraph on this page. About halfway down,  
19 the second to last sentence starts -- it's about  
20 halfway down in that paragraph. The second to  
21 last sentence starts with, "As shown above."

22 A Yes.

1           Q       "As shown above, reference persons are  
2 much less likely to answer the citizenship  
3 question for non-relatives in the household than  
4 for themselves, so may be even less likely to  
5 answer it for neighbors."

6                   Does the Census Bureau agree with the  
7 statement that people are less likely to answer  
8 the citizenship question for their neighbors than  
9 for themselves?

10          A       Yes.

11          Q       Now, another way that you can enumerate  
12 people when they don't self-respond to the census  
13 is to try to enumerate them using administrative  
14 records like tax returns; is that right?

15          A       All the way up to "like tax returns,"  
16 yes.

17          Q       Okay. Forget the tax returns. One way  
18 that -- if you don't get a self-respond to the  
19 census questionnaire, one way that you might try  
20 to enumerate that household is with administrative  
21 records, correct?

22          A       Yes.

1 primarily why the Census Bureau would be unable to  
2 link an ACS respondent to an administrative record  
3 indicating citizenship status: One, because the  
4 personally identifiable information on the survey  
5 response might not be high quality enough to link  
6 that person to administrative records; and, two,  
7 because the survey respondent is not in the  
8 administrative records at all; is that correct?

9 MR. EHRLICH: Objection. Form.

10 THE WITNESS: Yes.

11 BY MR. HO:

12 Q And if we look back at the graph,  
13 figure 4, among 2016 ACS respondents, Hispanics  
14 could not be linked to an administrative record at  
15 a higher rate than non-Hispanic whites, correct?

16 A Correct.

17 Q Now, based on this data, would you agree  
18 that the available evidence indicates that the  
19 Census Bureau, generally speaking, cannot link  
20 Hispanic survey respondents to administrative  
21 records at as high a rate as it can for  
22 non-Hispanic whites?

1           A     Yes.

2           Q     The administrative records referenced  
3     here are the SSA and tax records, correct?

4           A     The individual tax identification number  
5     records.

6           Q     You corrected me earlier when we talked  
7     about enumeration via administrative records.  
8     Could you just clarify what administrative records  
9     the Census Bureau relies on when it tries to  
10    enumerate people using administrative records?

11          A     There's two parts to the process for  
12    using administrative records for enumeration. One  
13    part is performing the record linkage to identify  
14    all of the administrative records that might apply  
15    to a particular household. And the other part is  
16    constructing a candidate administrative record  
17    enumeration to be used during the NRFU process if  
18    the first NRFU follow-up visit doesn't produce a  
19    successful interview.

20                In the former part of the process,  
21    there's extensive use of tax records. In the  
22    latter part of the process, by agreement with the

1 IRS, none of the tax data survive to the record  
2 that will be used for a candidate enumeration.  
3 That was the distinction I was trying to...

4 Q Would you agree that undocumented  
5 individuals are less likely to be found in the  
6 administrative records -- and when I say  
7 undocumented individuals, I mean undocumented  
8 immigrants -- are less likely to be found in the  
9 administrative records that the Census Bureau uses  
10 to enumerate people than persons who have legal  
11 status in this country?

12 A Yes.

13 Q And would you agree that the Census  
14 Bureau would have a more difficult time  
15 enumerating undocumented immigrants through the  
16 use of administrative records than it will for  
17 persons with legal status?

18 MR. EHRLICH: Objection. Form.

19 THE WITNESS: Yes.

20 BY MR. HO:

21 Q Overall, would you agree that the Census  
22 Bureau does not expect enumeration by



1 administrative records to be as successful for  
2 non-citizens as it is for citizens?

3 MR. EHRLICH: Objection. Form.

4 THE WITNESS: Yes.

5 BY MR. HO:

6 Q Let's go to page 5 of the white paper,  
7 Bates number COM\_DIS09837. And I'm looking at the  
8 last paragraph on the page that starts with,  
9 "Camarota."

10 "Camarota and Capizzano, 2004, conducted  
11 focus groups with over 50 field representatives  
12 (FRs) for the 2000 supplemental survey, a pilot  
13 for the ACS. FRs reported that foreign-born  
14 respondents living in the country illegally or  
15 from countries where there is distrust in  
16 government were less likely to cooperate. Some  
17 foreign-born respondents failed to list all  
18 household members. FRs suspected that some  
19 foreign-born respondents misreported citizenship  
20 status, and they" -- continuing to the next  
21 page -- "believed this was due to recall bias, a  
22 fear of the implications of certain responses or a

1 households to include a response for every member  
2 of their household, such as children, correct?

3 MR. EHRLICH: Objection. Form.

4 THE WITNESS: Are you referring to a  
5 specific study that you want me to comment on?

6 BY MR. HO:

7 Q I'm not. I'm just -- my understanding  
8 is -- and I just want you to correct me if my  
9 understanding is mistaken -- that the Census  
10 Bureau has looked at the historical undercount of  
11 Hispanics in previous censuses. That's correct,  
12 right?

13 A Yes.

14 Q Okay. And one of the reasons that the  
15 Census Bureau has attributed the undercount of  
16 Hispanics to in previous censuses has been the  
17 failure of Hispanic households to provide a  
18 response for every member of their household,  
19 correct?

20 A Yes.

21 Q Okay. Now, the Census Bureau agrees that  
22 if the citizenship question is included in the

1           A       I think I just answered that question.

2           Q       Is the evidence that we've seen and  
3       discussed about item non-response, unit  
4       non-response, breakoff rates with a citizenship  
5       question, is that evidence consistent with the  
6       notion that adding a citizenship question to the  
7       census would cause an incremental increase in the  
8       number of households that respond to the census  
9       but don't provide a response for every member of  
10      their household?

11          A       Yes.

12          Q       Now, NRFU efforts are only initiated if a  
13      household fails to provide a response for that  
14      household altogether, correct?

15          A       With a few minor exceptions outlined in  
16      my expert report, correct.

17          Q       So if a household responds to the census,  
18      but omits some of the members of that household,  
19      the Census Bureau doesn't send in-person  
20      enumerators to that person's door because you'd  
21      have no way of knowing if they omitted some  
22      members of their household, correct?

1           A       If the household's response passes the  
2       sufficiency condition for being considered an  
3       essentially complete response, then, yes.

4           Q       What's a sufficiency condition for being  
5       considered a complete response?

6           A       It's a set of conditions that are checked  
7       before the NRFU workload is generated to see  
8       whether the response that came in from the  
9       household is complete enough to essentially fill  
10      in the rest with imputations or not. It varies by  
11      type of enumeration area, but -- and the actual  
12      conditions haven't been set for 2020 yet.

13                   It is my way of saying there are some  
14      cases that go to NRFU where there was an  
15      incomplete response. And I don't have  
16      quantitative evidence on how many of those there  
17      are, but, generally, you're right. Generally, if  
18      you submit a self-response, it doesn't go to NRFU.

19           Q       Generally speaking, if you answer the  
20      questions on the census questionnaire, the 10  
21      questions, or 11, but you don't list every member  
22      of the household, the Census Bureau is not going

1 to send an in-person enumerator to your door,  
2 correct?

3 A Correct.

4 Q Okay. And if you fill out the census  
5 response, answer the 10 or 11 questions, but don't  
6 list every member of your household, the Census  
7 Bureau is not going to try to get a proxy response  
8 for your household, right?

9 A Correct.

10 Q And if you answer the census  
11 questionnaire, but you don't list every member of  
12 your household, the Census Bureau is not going to  
13 start imputing -- sorry -- the Census Bureau is  
14 not going to start using administrative records to  
15 enumerate additional members of your household,  
16 correct?

17 A That actually hasn't been determined, but  
18 it's probably correct.

19 Q Okay. And if you answer the census  
20 questionnaire, but you don't list every member of  
21 your household, the Census Bureau isn't going to  
22 start imputing additional members of your

1 household, correct?

2 A Correct.

3 Q I want to show a document that's been  
4 marked as Exhibit 26.

5 (Abowd Deposition Exhibit Number 26 was  
6 marked for identification.)

7 BY MR. HO:

8 Q This is an official memo published by the  
9 Census Bureau, correct?

10 A It's part of the public memorandum series  
11 following the 2010 census that documents the  
12 coverage measurement studies, yes.

13 Q And this memo, Exhibit 26, it was  
14 produced by the Census Bureau in the ordinary  
15 course of its business, not for the purposes of  
16 litigation, correct?

17 A Correct.

18 Q Okay. And the subject line of this  
19 Census Bureau memo is, "2010 census coverage  
20 measurement estimation report, summary of  
21 estimates of coverage for persons in the United  
22 States," correct?

1 through all the data, but I won't dispute it.

2 Q Okay. The Census Bureau acknowledges,  
3 and you mentioned earlier, that there are local  
4 undercounts for many hard-to-reach populations  
5 that can exist and have sometimes persisted for  
6 some time, for example, with the Hispanic  
7 community, correct?

8 MR. EHRLICH: Objection. Form.

9 THE WITNESS: So I don't think I said  
10 that. I said that we had documented differential  
11 net undercounts at the national level.

12 BY MS. FIDLER:

13 Q And those -- at the national level and  
14 there can -- and there are -- there's data to show  
15 that there have been persistent undercounts of the  
16 Latin -- of the Hispanic community in particular,  
17 correct?

18 MR. EHRLICH: Objection. Form.

19 THE WITNESS: At the national level,  
20 correct.

21 BY MS. FIDLER:

22 Q With regard to local population, if there

1 are undercounts, funding for things like schools  
2 and Medicare that rely on census population  
3 numbers can be decreased, correct?

4 MR. EHRLICH: Objection. Form.

5 THE WITNESS: The relation between  
6 population measures for local communities and  
7 funding is sometimes direct and sometimes  
8 indirect. In most cases, having a larger  
9 population implies a larger share of the total  
10 resource being allocated.

11 BY MS. FIDLER:

12 Q Many respondents throughout the study  
13 indicated an understanding that information is  
14 required to be kept confidential, but also  
15 indicated a fear that this could change and be  
16 used against them in the future. Are you familiar  
17 with that?

18 A Yes.

19 Q Is that a concern of the Census Bureau?

20 A The Census Bureau is not concerned about  
21 the current confidentiality protections embodied  
22 in title 13. Like any law, a law can be modified,



1 BY MS. FIDLER:

2 Q Let me back up. This is a focus group  
3 that's describing that they do not want to provide  
4 information because it is their understanding that  
5 their landlords do not know that these numbers are  
6 living in their household, correct?

7 A Understood, yes.

8 Q And in those cases when the census is  
9 relying on proxy information, in part -- one of  
10 the sources for proxy information are landlords,  
11 correct, and landlord records, correct?

12 A Yes.

13 Q But in those cases where the landlords do  
14 not know about the multigenerational housing, that  
15 information would not be there, correct?

16 A That's a reasonable presumption, yes.

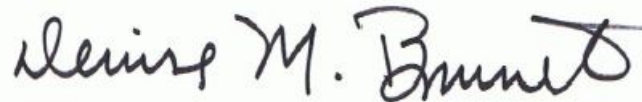
17 Q And so for subpopulations where  
18 multigenerational housing is common, this could  
19 present a problem for an accurate count of that  
20 subpopulation, correct?

21 A Yes.

22 MR. EHRLICH: Objection. Form.

CERTIFICATE OF NOTARY PUBLIC

I, Denise M. Brunet, the officer before whom the foregoing deposition was taken, do hereby certify that the witness whose testimony appears in the foregoing deposition was sworn by me; that the testimony of said witness was taken by me stenographically and thereafter reduced to print by means of computer-assisted transcription by me to the best of my ability; that I am neither counsel for, related to, nor employed by any of the parties to this litigation and have no interest, financial or otherwise, in the outcome of this matter.



-----  
Denise M. Brunet  
Notary Public in and for  
The District of Columbia

My commission expires:  
December 14, 2022

1 New York Immigration Coalition v. US Dept.of Commerce  
2 John Abowd, 30(b)(6)

3 ACKNOWLEDGMENT OF DEPONENT

4 I, \_\_\_\_\_, do  
5 hereby certify that I have read the foregoing  
6 pages and that the same is a correct  
7 transcription of the answers given by  
8 me to the questions therein propounded,  
9 except for the corrections or changes in form  
10 or substance, if any, noted in the attached  
11 Errata Sheet.

12  
13 \_\_\_\_\_  
14 DATE

13 \_\_\_\_\_  
14 SIGNATURE

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